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PARTS 166 TO 199

Revised as of October 1, 1990



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Table of Contents

	<i>Page</i>
Explanation	v
Title 46:	
Chapter I—Coast Guard, Department of Transportation (Continued)	3
Sounding Aids:	
Material Approved for Incorporation by Reference	417
Table of CFR Titles and Chapters	421
Alphabetical List of Agencies Appearing in the CFR	437
Redesignation Tables	446
List of CFR Sections Affected	457

Cite this Code: CFR

*To cite the regulations in
this volume use title,
part and section
number. Thus, 46 CFR
166.01 refers to title 46,
part 166, section 01.*

Explanation

The Code of Federal Regulations is a codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government. The Code is divided into 50 titles which represent broad areas subject to Federal regulation. Each title is divided into chapters which usually bear the name of the issuing agency. Each chapter is further subdivided into parts covering specific regulatory areas.

REVISION DATES

Each volume of the Code is revised at least once each calendar year and issued on a quarterly basis approximately as follows:

Title 1 through Title 16.....	as of January 1
Title 17 through Title 27.....	as of April 1
Title 28 through Title 41.....	as of July 1
Title 42 through Title 50.....	as of October 1

The appropriate revision date is printed on the cover of each volume.

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The contents of the Federal Register are required to be judicially noticed (44 U.S.C. 1507). The Code of Federal Regulations is prima facie evidence of the text of the original documents (44 U.S.C. 1510).

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date certain for expiration, an appropriate note will be inserted following the text.

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The Paperwork Reduction Act of 1980 (Pub. L. 96-511) requires Federal agencies to display an OMB control number with their information collection request. Many agencies have begun publishing numerous OMB control numbers as amendments to existing regulations in the CFR. These OMB numbers are placed as close as possible to the applicable recordkeeping or reporting requirements.

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What is incorporation by reference? Incorporation by reference was established by statute and allows Federal agencies to meet the requirement to publish regulations in the Federal Register by referring to materials already published elsewhere. For an incorporation to be valid, the Director of the Federal Register must approve it. The legal effect of incorporation by reference is that the material is treated as if it were published in full in the Federal Register (5 U.S.C. 552(a)). This material, like any other properly issued regulation, has the force of law.

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- (a) The incorporation will substantially reduce the volume of material published in the Federal Register.
- (b) The matter incorporated is in fact available to the extent necessary to afford fairness and uniformity in the administrative process.
- (c) The incorporating document is drafted and submitted for publication in accordance with 1 CFR part 51.

Properly approved incorporations by reference in this volume are listed in the Finding Aids at the end of this volume.

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III). A list of CFR titles, chapters, and parts and an alphabetical list of agencies publishing in the CFR are also included in this volume.

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MARTHA L. GIRARD,
Director,
Office of the Federal Register.

October 1, 1990.

THIS TITLE

Title 46—SHIPPING is composed of nine volumes. The parts in these volumes are arranged in the following order: Parts 1-40, 41-69, 70-89, 90-139, 140-155, 156-165, 166-199, 200-499 and 500-end. The first seven volumes containing Parts 1-199 comprise Chapter I—Coast Guard, Department of Transportation. The eighth volume containing Parts 200 to 499 includes Chapter II—Maritime Administration, Department of Transportation and Chapter III—Coast Guard (Great Lakes Pilotage), Department of Transportation. The ninth volume containing Part 500 to end includes Chapter IV—Federal Maritime Commission. The contents of these volumes represent all current regulations codified under this title of the CFR as of October 1, 1990.

Subject indexes for Chapter I—Coast Guard appear for Subchapter B—Merchant Marine Officers and Seamen, Subchapter C—Uninspected Vessels, and Subchapter D—Tank Vessels following the subchapters in Parts 1-40; for Subchapter F—Marine Engineering following the subchapter in Parts 41-69; for Subchapter H—Passenger Vessels following the subchapter in Parts 70-89; for Subchapter I—Cargo and Miscellaneous Vessels, Subchapter I-A—Mobile Offshore Drilling Units, and Subchapter J—Electrical Engineering following the subchapters in Parts 90-139; for Subchapter S—Subdivision and Stability and for Subchapter T—Small Passenger Vessels (Under 100 Gross Tons) following the subchapters in Parts 166-199.

Redesignation tables for Chapter I—Coast Guard appear in the Finding Aids section of the volumes containing Parts 1-40, Parts 41-69, Parts 70-89, Parts 90-139, Parts 140-155, Parts 156-165, and Parts 166-199. A redesignation table for Chapter II—Maritime Administration appears in the Finding Aids section of the volume containing Parts 200-499. A redesignation table for Chapter IV—Federal Maritime Commission appears in the Finding Aids section of the volume containing Part 500 to end.

For this volume, Linda L. Jones was Chief Editor. The Code of Federal Regulations publication program is under the direction of Richard L. Claypool, assisted by Alomha S. Morris.

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Title 46—Shipping

(This book contains Parts 166 to 199)

	<i>Part</i>
CHAPTER I—Coast Guard, Department of Transportation (continued)	166

CHAPTER I—COAST GUARD, DEPARTMENT OF TRANSPORTATION (Continued)

SUBCHAPTER R—NAUTICAL SCHOOLS

Part		Page
166	Designation and approval of nautical school ships.	5
167	Public nautical school ships	6
168	Civilian nautical school vessels	35
169	Sailing school vessels	39

SUBCHAPTER S—SUBDIVISION AND STABILITY

170	Stability requirements for all inspected vessels.....	91
171	Special rules pertaining to vessels carrying passengers.....	106
172	Special rules pertaining to bulk cargoes	144
173	Special rules pertaining to vessel use	156
174	Special rules pertaining to specific vessel types	167
	INDEX	177

SUBCHAPTER T—SMALL PASSENGER VESSELS (UNDER 100 GROSS TONS)

175	General provisions	186
176	Inspection and certification	197
177	Construction and arrangement.....	210
178-179	[Reserved]	
180	Lifesaving equipment.....	215
181	Fire protection equipment.....	222
182	Machinery installation	227
183	Electrical installation	242
184	Vessel control and miscellaneous systems and equipment.....	260
185	Operations	263
	INDEX	271

SUBCHAPTER U—OCEANOGRAPHIC RESEARCH VESSELS

188	General provisions	281
189	Inspection and certification	294
190	Construction and arrangement.....	310
191	[Reserved]	

<i>Part</i>		<i>Page</i>
192	Lifesaving equipment.....	322
193	Fire protection equipment.....	348
194	Handling, use and control of explosives and other hazardous materials.....	362
195	Vessel control and miscellaneous systems and equipment.....	372
196	Operations	378

SUBCHAPTER V—MARINE OCCUPATIONAL SAFETY AND HEALTH
STANDARDS

197	General provisions	396
198-199	[Reserved]	

SUBCHAPTER R—NAUTICAL SCHOOLS

PART 166—DESIGNATION AND APPROVAL OF NAUTICAL SCHOOL SHIPS

Sec.

166.01 Approval of nautical school ships.

166.05 Course of study for deck students.

166.10 Course of study for engineering students.

166.15 Training for maintenance of discipline; ship sanitation; fire and lifeboat drills.

166.20 Applicants for certificates; when eligible for examination.

AUTHORITY: 46 U.S.C. 2103, 3306, 8105; 46 U.S.C. App. 1295g; 49 CFR 1.46.

SOURCE: CGFR 52-43, 17 FR 9542, Oct. 18, 1952, unless otherwise noted.

§ 166.01 Approval of nautical school ships.

(a) Under the provisions of section 13 of the Act of March 4, 1915 (38 Stat. 1169; 46 U.S.C. 672), as amended by section 1 of the Act of June 25, 1936 (49 Stat. 1930; 46 U.S.C. 672), and the Act of May 22, 1937 (50 Stat. 199; 46 U.S.C. 672), graduates of school ships approved by and conducted under rules prescribed by the Commandant may be rated able seamen or qualified members of the engine department.

(b) It has been made to appear to the satisfaction of the Commandant that the school ships operated by the States in which they are located; namely, by the California Maritime Academy, Great Lakes Maritime Academy at Northwestern Michigan College, Maine Maritime Academy, Massachusetts Maritime Academy, New York State Maritime College, and Texas Maritime Academy, and by the United States Merchant Marine Academy, the United States Naval Academy, and the United States Coast Guard Academy, have adopted a course of study for their students complying with the rules prescribed by the Commandant, and a system of instruction adequate to equip the deck and engineering students theoretically and physically in the rudiments of seamanship and navigation necessary to qualify the graduates for the rating of "able seamen" and in all branches of marine engineering necessary to qual-

ify the graduates for the rating of "qualified member of the engine department," respectively.

(c) The school ships operated by the State organizations and the Federal academies named in paragraph (b) of this section are hereby approved and their graduates, if meeting the other qualifications required by law and regulations promulgated thereunder, are entitled to the rating of able seamen or qualified members of the engine department and to be certified as such.

(d) A graduate of any of those school ships, if meeting the other qualifications required by law and regulations promulgated thereunder, is also entitled to the rating of lifeboatman and to be certified as such.

[CGFR 52-43, 17 FR 9542, Oct. 18, 1952, as amended by CGD 72-92R, 38 FR 29320, Oct. 24, 1973]

§ 166.05 Course of study for deck students.

The course of study for deck students shall include (a) all the instructions in the rudiments of seamanship and navigation necessary to equip the student fully with the theoretical knowledge required for the proper discharge of the duties developing upon able seaman; (b) a thorough practical training in the mechanics of all operations incident to the sailing and management of a vessel insofar as such operations form a part of the duties of able seamen.

§ 166.10 Course of study for engineering students.

The course of study for engineering students shall include (a) all the instruction necessary to fully equip the student with the theoretical knowledge required for the proper discharge of the duties developing upon qualified members of the engine department; (b) a thorough practical training in the mechanics of all operations incident to the sailing and management of a vessel insofar as such operations form a part of the duties of qualified members of the engine department.

§ 166.15

§ 166.15 Training for maintenance of discipline; ship sanitation; fire and lifeboat drills.

All students shall be trained to obey all lawful orders emanating from their superior officers and schooled in the rules of conduct to be observed in order that proper discipline may be maintained on shipboard. They shall also be instructed in the fundamentals of ship sanitation as prescribed by law and regulations, and shall be given intensive instruction and practical training in all the operations incident to fire and lifeboat drills, both in port and at sea.

§ 166.20 Applicants for certificates; when eligible for examination.

Applicants for certificates as able seamen will be eligible for examination after they have completed a course of study as outlined in §§ 166.05, 166.15, and applicants for certificates as qualified members of the engine department after they have completed a course of study as outlined in §§ 166.10, 166.15.

PART 167—PUBLIC NAUTICAL SCHOOL SHIPS

Subpart 167.01—General Provisions

Sec.

- 167.01-1 Basis and purpose of part.
- 167.01-5 Application of regulations.
- 167.01-7 Ocean or unlimited coastwise vessels on inland and Great Lakes Routes.
- 167.01-8 Inspection of school ships using gross tonnage criterion.
- 167.01-10 Effective date of regulations.
- 167.01-15 Specifications for articles or materials.
- 167.01-20 OMB control numbers assigned pursuant to the Paperwork Reduction Act.

Subpart 167.05—Definitions

- 167.05-1 Definition of terms.
- 167.05-5 Approved.
- 167.05-10 Commandant.
- 167.05-15 Coast Guard District Commander.
- 167.05-20 Marine inspector or inspector.
- 167.05-25 Nautical school ship.
- 167.05-30 Officer in Charge, Marine Inspection.

46 CFR Ch. I (10-1-90 Edition)

Sec.

Subpart 167.10—Enforcement and Right of Appeal

- 167.10-1 Enforcement.
- 167.10-50 Right of appeal.

Subpart 167.15 Inspections

- 167.15-1 Inspections required.
- 167.15-5 Authority of marine inspectors.
- 167.15-10 Application for annual inspection.
- 167.15-15 Application for inspection of a new nautical school ship or a conversion of a vessel to a nautical school ship.
- 167.15-20 Inspections of nautical school ships.
- 167.15-25 Inspection standards for hulls, boilers and machinery.
- 167.15-27 Definitions relating to hull examinations.
- 167.15-30 Drydock examination and internal structural examination intervals.
- 167.15-35 Notice and plans required.
- 167.15-40 Integral fuel oil tank examinations—T/ALL.
- 167.15-50 Tallshaft examinations.

Subpart 167.20—Hull Requirements, Construction and Arrangement of Nautical School Ships

- 167.20-1 Construction.
- 167.20-7 Subdivision and stability.
- 167.20-10 Means of escape.
- 167.20-15 Scupper, sanitary and similar discharges.
- 167.20-17 Bilge pumps, bilge piping and sounding arrangements.
- 167.20-35 Liquid ballast.

Subpart 167.25—Marine Engineering

- 167.25-1 Boilers, pressure vessels, piping and appurtenances.
- 167.25-5 Inspection of boilers, pressure vessels, piping and appurtenances.
- 167.25-20 Carrying of excess steam.

Subpart 167.30—Repairs or Alterations

- 167.30-1 Notice of repairs or alterations required.
- 167.30-5 Proceeding to another port for repairs.
- 167.30-10 Special operating requirements.

Subpart 167.35—Lifesaving Equipment

- 167.35-1 Use of approved lifesaving equipment.
- 167.35-2 Inflatable liferafts.
- 167.35-3 Hydraulic releases.
- 167.35-5 Life preservers.
- 167.35-10 Lifeboats.

Sec.

- 167.35-15 Tests of lifeboats at annual inspection.
- 167.35-20 Air tanks in lifeboats.
- 167.35-25 Numbering and marking of lifeboats.
- 167.35-30 Care of lifeboats.
- 167.35-35 Davits.
- 167.35-40 Strength and operation of davits.
- 167.35-45 Releasing gear or disengaging apparatus.
- 167.35-50 Inspection of releasing gear or disengaging apparatus.
- 167.35-60 Lifeboat equipment.
- 167.35-65 Motor lifeboat equipment.
- 167.35-70 Portable radio apparatus.
- 167.35-72 Emergency position indicating radiobeacon (EPIRB).
- 167.35-75 Handling of lifeboats.
- 167.35-80 Life buoys.
- 167.35-85 Line-throwing appliances.
- 167.35-90 Embarkation ladders.

Subpart 167.40—Certain Equipment Requirements

- 167.40-1 Electrical installations.
- 167.40-5 Alarm bells.
- 167.40-7 Voice tubes, telephone, and telegraph systems.
- 167.40-20 Deep-sea sounding apparatus.
- 167.40-25 Signaling lamp.
- 167.40-30 Guards and rails.
- 167.40-35 Motion-picture projectors.
- 167.40-40 Radar.
- 167.40-45 Magnetic compass and gyrocompass.

Subpart 167.43—Work Vests

- 167.43-1 Application.
- 167.43-5 Approved types of work vests.
- 167.43-10 Use.
- 167.43-15 Shipboard stowage.
- 167.43-20 Shipboard inspections.
- 167.43-25 Additional requirements for hybrid work vests.

Subpart 167.45—Special Firefighting and Fire Prevention Requirements

- 167.45-1 Steam, carbon dioxide, and halon fire extinguishing systems.
- 167.45-5 Steam fire pumps or their equivalent.
- 167.45-10 Couplings on fire hose.
- 167.45-15 Capacity of pipes and hose.
- 167.45-20 Examination and testing of pumps and fire-extinguishing equipment.
- 167.45-25 Fire mains and hose connections.
- 167.45-30 Use of approved fire-fighting equipment.
- 167.45-40 Fire-fighting equipment on nautical school ships using oil as fuel.

Sec.

- 167.45-45 Carbon dioxide fire-extinguishing system requirements.
- 167.45-50 Foam smothering system requirements.
- 167.45-55 Fixed water spray system requirements.
- 167.45-60 Emergency breathing apparatus and flame safety lamps.
- 167.45-65 Portable fire extinguishers in accommodation spaces.
- 167.45-70 Portable fire extinguishers, general requirements.
- 167.45-75 Fire extinguishers for emergency powerplants.
- 167.45-80 Fire axes.

Subpart 167.50—Accommodations

- 167.50-1 Hospital accommodations.

Subpart 167.55—Special Markings Required

- 167.55-1 Draft marks.
- 167.55-5 Marking of fire and emergency equipment, etc.

Subpart 167.60—Certificates of Inspection

- 167.60-1 Issuance by Officer in Charge, Marine Inspection.
- 167.60-5 Period of time for which valid.
- 167.60-10 Exhibition of certificate of inspection.
- 167.60-15 Manning and persons allowed to be carried.

Subpart 167.65—Special Operating Requirements

- 167.65-1 Station bills, drills, and log book entries.
- 167.65-3 Reckless or negligent operation prohibited by law.
- 167.65-5 Flashing the rays of a searchlight or other blinding light.
- 167.65-10 Unauthorized lights.
- 167.65-15 Routing instructions; strict compliance with.
- 167.65-20 Unnecessary whistling.
- 167.65-25 Steering gear tests.
- 167.65-30 Steering orders.
- 167.65-35 Use of auto pilot.
- 167.65-40 Draft.
- 167.65-45 Notice to mariners; aids to navigation.
- 167.65-50 Posting placards of lifesaving signals and breeches buoy instructions.
- 167.65-55 Posting placards containing instructions for launching and inflating inflatable liferafts.
- 167.65-60 Examination of boilers and machinery by engineer.
- 167.65-65 Notice and reporting of casualty and voyage records.

§ 167.01-1

Sec.

167.05-70 Reports of accidents, repairs, and unsafe boilers and machinery by engineers.

AUTHORITY: 46 U.S.C. 3306, 6101, 8105; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGFR 51-11, 16 FR 3218, Apr. 12, 1951, unless otherwise noted.

Subpart 167.01—General Provisions

§ 167.01-1 Basis and purpose of part.

By virtue of the authority in R.S. 4405 (46 U.S.C. 375), as amended, and to apply the requirements of the act of October 25, 1919, as amended (41 Stat. 305; 46 U.S.C. 363), the rules and regulations in this part are prescribed and apply to public nautical school ships, except vessels of the Navy or Coast Guard. It is the intent of the regulations in this part to provide minimum standards for vessels used as nautical school ships in accordance with the various inspection statutes and to obtain their correct and uniform application. This part is not applicable to civilian nautical school ships.

§ 167.01-5 Application of regulations.

(a) Regulations in this part contain requirements for the design, construction, inspection, lifesaving equipment, firefighting and fire prevention requirements, special operating requirements and number of persons allowed to be carried on nautical school ships.

(b) Vessels owned or chartered by the United States Maritime Administration that may be used by or in connection with any nautical school are not normally considered as merchant vessels of the United States and, therefore, are not documented.

(c) Documented nautical school ships of 500 gross tons or more, on international voyages, shall comply with the standards of the International Convention for Safety of Life at Sea, 1974, for cargo vessels.

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 69-127, 35 FR 9982, June 17, 1970; CGD 90-008, 55 FR 30663, July 26, 1990]

46 CFR Ch. I (10-1-90 Edition)

§ 167.01-7 Ocean or unlimited coastwise vessels on inland and Great Lakes Routes.

(a) Vessels inspected and certificated for ocean or unlimited coastwise routes shall be considered suitable for navigation insofar as the provisions of this subchapter are concerned on any inland route, including the Great Lakes.

[CGFR 59-10, 24 FR 3240, Apr. 25, 1959]

§ 167.01-8 Inspection of school ships using gross tonnage criterion.

(a) One of the criteria used for invocation of safety standards is the descriptions of school ships by relative sizes in gross tonnages. When it is determined in accordance with § 70.05-20 of this chapter that a particular school ship has a Bureau of Customs' assigned gross register tonnage which is not indicative of the relative physical size of the vessel, the requirements in this part and the manning shall be that applicable to a vessel of the greater relative size.

[CGFR 60-50, 25 FR 7982, Aug. 18, 1960]

§ 167.01-10 Effective date of regulations.

(a) The regulations in this part shall be in effect on and after July 1, 1951: *Provided*, That amendments, revisions, or additions shall become effective 90 days after the date of publication in the *FEDERAL REGISTER* unless the Commandant shall fix a different time.

(b) Amendments to regulations in this part will not be retroactive in effect unless specifically made so at the time the amendments are issued.

§ 167.01-15 Specifications for articles or materials.

Articles of equipment or materials used in the equipment or the construction of vessels, which conform to the specifications of the Navy or Coast Guard or their approved equivalent, may be accepted.

§ 167.01-20 OMB control numbers assigned pursuant to the Paperwork Reduction Act.

(a) *Purpose.* This section collects and displays the control numbers assigned to information collection and record-

keeping requirements in this subchapter by the Office of Management and Budget (OMB) pursuant to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). The Coast Guard intends that this section comply with the requirements of 44 U.S.C. 3507(f), which requires that agencies display a current control number assigned by the Director of the OMB for each approved agency information collection requirement.

(b) *Display.*

46 CFR part or section where identified or described	Current OMB control No.
§ 167.15-35	2115-0554

[CGD 88-072, 53 FR 34298, Sept. 6, 1988]

Subpart 167.05—Definitions

§ 167.05-1 Definition of terms.

Certain terms used in the regulations of this part are defined in this subpart.

§ 167.05-5 Approved.

This term means approved by the Commandant unless otherwise stated.

§ 167.05-10 Commandant.

This term means Commandant of the Coast Guard.

§ 167.05-15 Coast Guard District Commander.

This term means an Officer of the Coast Guard designated as such by the Commandant to command all Coast Guard activities within his district, which include the inspections, enforcement, and administration of Title 52, R.S., and acts amendatory thereof or supplemental thereto, and rules and regulations thereunder.

§ 167.05-20 Marine inspector or inspector.

These terms mean any person from the civilian or military branch of the Coast Guard assigned under the superintendence and direction of an Officer in Charge, Marine Inspection, or any other person as may be designated for the performance of duties with respect to the inspections, enforcement, and the administration of Title 52, R.S.,

and acts amendatory thereof or supplemental thereto, and rules and regulations thereunder.

§ 167.05-25 Nautical school ship.

This term means any vessel used as a nautical school ship by any state or political subdivision thereof or a school operated by the United States Maritime Administration, but shall not include vessels of the Navy or Coast Guard.

§ 167.05-30 Officer in Charge, Marine Inspection.

This term means any person from the civilian or military branch of the Coast Guard designated as such by the Commandant, and who, under the superintendence and direction of the Coast Guard District Commander, is in charge of an inspection zone for the performance of duties with respect to the inspections, enforcement, and administration of Title 52, R.S., and acts amendatory thereof or supplemental thereto, and rules and regulations thereunder.

Subpart 167.10—Enforcement and Right of Appeal

§ 167.10-1 Enforcement.

The Officer in Charge, Marine Inspection, is responsible for the performance of duties within his jurisdiction with respect to inspection of nautical school ships which are subject to the provisions of Title 52, R.S., and acts amendatory thereof or supplemental thereto, rules and regulations issued thereunder, and the inspections required thereby.

§ 167.10-50 Right of appeal.

Any person directly affected by a decision or action taken under this part, by or on behalf of the Coast Guard, may appeal therefrom in accordance with subpart 1.03 of this chapter.

[CGD 88-033, 54 FR 50381, Dec. 6, 1989]

§ 167.15-1

Subpart 167.15—Inspections

§ 167.15-1 Inspections required.

(a) Before a vessel may be used as a nautical school ship, it shall be inspected by the Coast Guard to determine that the hull, boilers, machinery, equipment and appliances comply with the regulations in this part.

(b) Every nautical school ship subject to the regulations in this part shall be inspected annually, or oftener if necessary, by the Coast Guard to determine that the hull, boilers, machinery, equipment and appliances comply with the regulations in this part.

(c) Nautical school ships while laid up and dismantled and out of commission are exempt from any or all inspections required by law or regulations in this part.

§ 167.15-5 Authority of marine inspectors.

Marine inspectors may at any time lawfully inspect any nautical school ship.

§ 167.15-10 Application for annual inspection.

Application in writing for the annual inspection of every nautical school ship required to be inspected by law and the regulations in this part shall be made by the master, owner, or agent to the Officer in Charge, Marine Inspection, at any local Marine Inspection Office, U.S. Coast Guard, where the nautical school ship may be operating. The application shall be on Form CG 3752, Application for Inspection of U.S. Vessel, which requires information on name and type of vessel, nature of employment and route in which to be operated, place where and date when the vessel may be inspected, and that no other application has been made to any Officer in Charge, Marine Inspection, since the issuance of the last valid certificate of inspection.

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 64-19, 29 FR 7361, June 5, 1964]

46 CFR Ch. I (10-1-90 Edition)

§ 167.15-15 Application for inspection of a new nautical school ship or a conversion of a vessel to a nautical school ship.

Prior to the commencement of the construction of a new nautical school ship, or a conversion of a vessel to a nautical school ship, application for the approval of contract plans and specifications and for a certificate of inspection shall be made in writing by the owner or agent to the Officer in Charge, Marine Inspection, at the nearest local Marine Inspection Office, U.S. Coast Guard.

§ 167.15-20 Inspections of nautical school ships.

At each annual inspection, or oftener if deemed necessary, the inspector will inspect the hull, boilers, machinery, equipment, and appliances generally for compliance with the regulations in this subpart and in addition will inspect and test certain specific items as specifically set forth in this part.

§ 167.15-25 Inspection standards for hulls, boilers and machinery.

Except as otherwise provided by law or regulations in this subpart, the following standards shall be accepted as standard by the inspectors:

(a) American Bureau of Shipping "Rules for Building and Classing Steel Vessels" regarding the construction of hulls, boilers and machinery in effect on the date of inspection. These rules may be purchased from the American Bureau of Shipping, New York, N.Y.

(b) U. S. Navy Standard Construction Specification in effect on the date of inspection.

(c) U. S. Coast Guard Standard Construction Specification in effect on the date of inspection.

§ 167.15-27 Definitions relating to hull examinations.

As used in this part—

(a) "Drydock examination" means hauling out a vessel or placing a vessel in a drydock or slipway for an examination of all accessible parts of the vessel's underwater body and all through-hull fittings, sea chests, sea

valves, sea strainers, and valves for the emergency bilge suction.

(b) "Internal structural examination" means an examination of the vessel while afloat or in drydock and consists of a complete examination of the vessel's main strength members, including the major internal framing, the hull plating, voids, and ballast tanks, but not including cargo or fuel oil tanks.

[CGD 84-024, 52 FR 39655, Oct. 23, 1987, as amended at 53 FR 32232, Aug. 24, 1988]

§ 167.15-30 Drydock examination and internal structural examination intervals.

(a) Except as provided for in paragraphs (b) through (e) of this section, each vessel must undergo drydock and internal structural examinations as follows:

(1) Vessels that operate in salt water must undergo two drydock and two internal structural examinations within any five year period. No more than three years may elapse between any two examinations.

(2) Vessels that operate in fresh water at least six months in every 12 month period since the last drydock examination must undergo drydock and internal structural examinations at intervals not to exceed five years.

(b) Vessels with wooden hulls must undergo two drydock and two internal structural examinations within any five year period regardless of the type of water in which they operate. No more than three years may elapse between any two examinations.

(c) If, during an internal structural examination damage or deterioration to the hull plating or structural members is discovered, the Officer in Charge, Marine Inspection, may require the vessel to be drydocked or otherwise taken out of service to further assess the extent of the damage and to effect permanent repairs.

(d) Each vessel which has not met with the applicable examination schedules in paragraphs (a) through (c) of this section because it is on a voyage, must undergo the required examinations upon completion of the voyage.

(e) The Commandant (G-MVI) may authorize extensions to the examina-

tion intervals specified in paragraphs (a) and (b) of this section.

[CGD 84-024, 52 FR 39655, Oct. 23, 1987, as amended at 53 FR 32232, Aug. 24, 1988]

§ 167.15-35 Notice and plans required.

(a) The master, owner, operator, or agent of the vessel shall notify the Officer in Charge, Marine Inspection, whenever the vessel is to be drydocked regardless of the reason for drydocking.

(b) Each vessel, except barges, that holds a Load Line Certificate must have on board a plan showing the vessel's scantlings. This plan must be made available to the Coast Guard marine inspector whenever the vessel undergoes a drydock examination or internal structural examination or whenever repairs are made to the vessel's hull.

(c) Each barge that holds a Load Line Certificate must have a plan showing the barge's scantlings. The plan need not be maintained on board the barge but must be made available to the Coast Guard marine inspector whenever the barge undergoes a drydock examination or internal structural examination or whenever repairs are made to the barge's hull.

[CGD 84-024, 52 FR 39655, Oct. 23, 1987]

§ 167.15-40 Integral fuel oil tank examinations—T/ALL.

(a) Each fuel oil tank with at least one side integral to the vessel's hull and located within the hull ("integral fuel oil tank") is subject to inspection as provided in this section. The owner or operator of the vessel shall have the tanks cleaned out and gas freed as necessary to permit internal examination of the tank or tanks designated by the marine inspector. The owner or operator shall arrange for an examination of the fuel tanks of each vessel during an internal structural examination at intervals not to exceed five years.

(b) Integral non-double-bottom fuel oil tanks need not be cleaned out and internally examined if the marine inspector is able to determine by external examination that the general condition of the tanks is satisfactory.

§ 167.15-50

(c) Double-bottom fuel oil tanks on vessels less than 10 years of age need not be cleaned out and internally examined if the marine inspector is able to determine by external examination that the general condition of the tanks is satisfactory.

(d) Double-bottom fuel oil tanks on vessels 10 years of age or older but less than 15 years of age need not be cleaned out and internally examined if the marine inspector is able to determine by internal examination of at least one forward double-bottom fuel oil tank, and by external examination of all other double-bottom fuel oil tanks on the vessel, that the general condition of the tanks is satisfactory.

(e) All double-bottom fuel oil tanks on vessels 15 years of age or older need not be cleaned out and internally examined if the marine inspector is able to determine by internal examination of at least one forward, one amidships, and one aft double-bottom fuel oil tank, and by external examination of all other double-bottom fuel oil tanks on the vessel, that the general condition of the tanks is satisfactory.

[CGD 84-024, 52 FR 39655, Oct. 23, 1987, as amended at 53 FR 32232, Aug. 24, 1988]

§ 167.15-50 Tailshaft examinations.

Tailshaft examinations on nautical school ships must conform with the examination requirements in Part 61 of this chapter.

[CGD 84-024, 52 FR 39655, Oct. 23, 1987]

Subpart 167.20—Hull Requirements, Construction and Arrangement of Nautical School Ships

§ 167.20-1 Construction.

Except as otherwise provided by law or regulations in this subpart, the following standards for construction are acceptable.

(a) American Bureau of Shipping "Rules for Building and Classing Steel Vessels" regarding the construction of hulls, boilers and machinery in effect on the date of inspection. These rules may be purchased from the American Bureau of Shipping, New York, N.Y.

(b) U. S. Navy Standard Construction Specification in effect on the date of inspection.

46 CFR Ch. I (10-1-90 Edition)

(c) U. S. Coast Guard Standard Construction Specification in effect on the date of inspection.

§ 167.20-7 Subdivision and stability.

Each vessel must meet the applicable requirements in Subchapter S of this chapter.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983]

§ 167.20-10 Means of escape.

(a) On all nautical school ships where the arrangements will possibly permit, all inclosures where persons may be quartered, or where anyone may be employed, shall be provided with not less than two avenues of escape, so located that if one of such avenues is not available another may be.

§ 167.20-15 Scupper, sanitary and similar discharges.

(a) All scupper, sanitary, and other similar discharges which lead through the ship's hull shall be fitted with efficient means for preventing the ingress of water in the event of a fracture of such pipes. The requirements do not apply to the discharges in the machinery space connected with the main and auxiliary engines, pumps, etc.

§ 167.20-17 Bilge pumps, bilge piping and sounding arrangements.

The number, capacity, and arrangement of bilge pumps and bilge piping shall be in accordance with the requirements for cargo vessels contained in Parts 50 to 61 of Subchapter F (Marine Engineering) of this chapter. Sounding pipes shall be fitted in each compartment, except those accessible at all times. The main and secondary drain systems installed in accordance with U.S. Navy or U.S. Coast Guard Construction Specifications shall be accepted as meeting the intent of this section.

[CGFR 52-43, 17 FR 9542, Oct. 18, 1952]

§ 167.20-35 Liquid ballast.

When water ballasting of fuel tanks is necessary, such oily ballast shall not be subsequently discharged overboard within any of the prohibited zones as defined by the Oil Pollution Act, 1961

Coast Guard, DOT

§ 167.30-5

(33 U.S.C. 1011), except through oily water separators which meet the requirements in § 55.10-25(n) of Subchapter F (Marine Engineering) of this chapter, or directly into sludge barges or shore facilities, or other approved means.

[CGFR 62-17, 27 FR 9046, Sept. 11, 1962]

Subpart 167.25—Marine Engineering

§ 167.25-1 Boilers, pressure vessels, piping and appurtenances.

(a) Except as otherwise provided by law or regulations in this subpart, all vessels constructed or reconverted to use as nautical school ships on or after July 1, 1951, shall conform with one of the following standards for boilers, pressure vessels, piping and appurtenances:

(1) Marine engineering regulations in Parts 50 to 63, inclusive, of Subchapter F (Marine Engineering) of this chapter.

(2) Navy Standard Construction Specifications in effect at time of construction or conversion.

(3) U.S. Coast Guard Standard Construction Specifications in effect at time of construction or conversion.

(b) The boilers, pressure vessels, and appurtenances shall be inspected initially under the provisions of Part 52 of Subchapter F (Marine Engineering) of this chapter. All alterations, replacements or repairs on nautical school ships shall conform to the applicable standards in paragraph (a) of this section insofar as practicable.

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 68-82, 33 FR 18908, Dec. 18, 1968]

§ 167.25-5 Inspection of boilers, pressure vessels, piping and appurtenances.

The inspection of boilers, pressure vessels, piping and appurtenances shall be in accordance with the applicable regulations in Parts 50 to 63, inclusive, of Subchapter F (Marine Engineering) of this chapter, insofar as they relate to tests and inspection of cargo vessels.

[CGFR 68-82, 33 FR 18908, Dec. 18, 1968]

§ 167.25-20 Carrying of excess steam.¹

When it is known or comes to the knowledge of the Officer in Charge, Marine Inspection, that any steam nautical school ship is or has been carrying an excess of steam beyond that which is allowed by her certificate of inspection, the Officer in Charge, Marine Inspection, in whose zone the nautical school ship is being navigated, in addition to reporting the fact to the United States District Attorney for prosecution under R. S. 4437 (46 U.S.C. 413), shall require the owner or owners of the nautical school ship to place on the boiler a lockup safety valve which will prevent the carrying of an excess of steam and it shall be under the control of said Officer in Charge, Marine Inspection.

Subpart 167.30—Repairs or Alterations

§ 167.30-1 Notice of repairs or alterations required.

(a) It shall be the duty of the master, owner, or agent to notify the nearest Officer in Charge, Marine Inspection, whenever repairs or alterations are required, or will be made on a nautical school ship.

(b) Whenever a nautical school ship is placed upon the dock, it shall be the duty of the master, owner or agent to report the same to the Officer in Charge, Marine Inspection, so that a thorough inspection may be made by the Coast Guard to determine what is necessary to make such a nautical school ship seaworthy, if the condition or age of the nautical school ship, in the judgment of the Officer in Charge, Marine Inspection, renders such examination necessary.

§ 167.30-5 Proceeding to another port for repairs.

(a) The Officer in Charge, Marine Inspection, may issue a permit to proceed to another port for repairs, if in his judgment it can be done with

¹Attention is called to R. S. 4437 (46 U.S.C. 413), which makes the obstructing of a safety valve a misdemeanor subject to a \$200 fine and imprisonment for not to exceed 5 years.

§ 167.30-10

46 CFR Ch. I (10-1-90 Edition)

safety. In the issuance of such a permit the Officer in Charge, Marine Inspection, will state upon its face, the conditions upon which it is granted.

(b) When a nautical school ship obtains a permit from the Officer in Charge, Marine Inspection, to go to another port for repairs, the Officer in Charge, Marine Inspection, shall so notify the Coast Guard District Commander, and state the repairs to be made. The Coast Guard District Commander shall notify the Coast Guard District Commander of the district where such repairs are to be made, furnishing him a copy of the report indicating the repairs ordered.

§ 167.30-10 Special operating requirements.

Inspection and testing required when making alterations, repairs, or other such operations involving riveting, welding, burning, or like fire-producing actions are as follows:

(a) The provisions of "Standard for the Control of Gas Hazards on Vessels to be Repaired", NFPA No. 306, published by National Fire Protection Association, 60 Batterymarch Street, Boston, Mass., shall be used as a guide in conducting the inspections and issuance of certificates required by this section.

(b) Until an inspection has been made to determine that such operation can be undertaken with safety, no alterations, repairs, or other such operations involving riveting, welding, burning, or like fire-producing actions shall be made:

(1) Within or on the boundaries of cargo tanks which have been used to carry combustible liquids or chemicals in bulk; or,

(2) Within spaces adjacent to cargo tanks which have been used to carry Grade D combustible liquid cargo, except where the distance between such cargo tanks and the work to be performed is not less than twenty-five (25) feet; or,

(3) Within or on the boundaries of fuel tanks; or,

(4) To pipe lines, heating coils, pumps, fittings, or other appurtenances connected to such cargo or fuel tanks.

(c) Such inspections shall be made and evidenced as follows:

(1) In ports or places in the United States or its territories and possessions, the inspection shall be made by a marine chemist certificated by the National Fire Protection Association; however, if the services of such certified marine chemist are not reasonably available, the Officer in Charge, Marine Inspection, upon the recommendation of the vessel owner and his contractor or their representative, shall select a person who, in the case of an individual vessel, shall be authorized to make such inspection. If the inspection indicates that such operations can be undertaken with safety, a certificate setting forth the fact in writing and qualified as may be required, shall be issued by the certified marine chemist or the authorized person before the work is started. Such qualifications shall include any requirements, as may be deemed necessary to maintain, insofar as can reasonably be done, the safe conditions in the spaces certified throughout the operation and shall include such additional tests and certifications as considered required. Such qualifications and requirements shall include precautions necessary to eliminate or minimize hazards that may be present from protective coatings or residues from cargoes.

(2) When not in such a port or place, and a marine chemist or such person authorized by the Officer in Charge, Marine Inspection, is not reasonably available, the inspection shall be made by the senior officer present and a proper entry shall be made in the vessel's logbook.

(d) It shall be the responsibility of the senior officer present to secure copies of certificates issued by the certified marine chemist or such person authorized by the Officer in Charge, Marine Inspection. It shall be the responsibility of the senior officer present, insofar as the persons under his control are concerned, to maintain a safe condition on the vessel by full observance of all qualifications and requirements listed by the marine chemist in the certificate.

[CGFR 64-19, 29 FR 7361, June 5, 1964]

Subpart 167.35—Lifesaving Equipment

§ 167.35-1 Use of approved lifesaving equipment.

(a) Lifeboats, lifeboat disengaging apparatus, life-rafts, life preservers, or other lifesaving equipment which conform to the specifications of the Navy or Coast Guard, or their approved equivalent, may be accepted for use on nautical school ships, but on or before July 1, 1963, all kapok and fibrous glass life preservers which do not have plastic-covered pad inserts shall be removed from service.

[CGFR 60-36, 25 FR 10642, Nov. 5, 1960]

§ 167.35-2 Inflatable life-rafts.

(a) On all vessels of less than 3000 gross tons, except those required to meet the standards of the International Convention for Safety of Life at Sea, 1974, the Officer in Charge, Marine Inspection, upon request of the master, owner or agent, may permit substitution of approved inflatable life-rafts for lifeboats. The criteria to be used by the Officer in Charge, Marine Inspection, in determining substitutions to be permitted will be in accordance with substitutions permitted in Subchapter H (Passenger Vessels) of this chapter.

(b) Inflatable life-rafts shall be stowed in such a manner that they will float free in the event of the vessel sinking. Stowage and arrangements will be to the satisfaction of the Officer in Charge, Marine Inspection.

(c) Inflatable life-rafts shall be serviced at an approved service facility every 12 months or not later than next vessel inspection, provided total time since date of last servicing does not exceed 15 months.

NOTE: After the raft has been satisfactorily serviced in the presence of a marine inspector, the raft is repacked and sealed and the carrying case stamped "PASSED" together with the date, port, and the marine inspector's initials.

(d) Inflatable life-rafts shall be equipped in accordance with Subpart 160.051 of Subchapter Q (Specifications) of this chapter.

(e) An inflatable life-raft must meet the following:

(1) The life-raft must be approved under Subpart 160.051 of this chapter.

(2) Except as required in paragraph (e)(3) of this section, the life-raft must be marked in accordance with § 160.051-8 of this chapter.

(3) After January 1, 1976 on vessels certificated for Great Lakes service and after January 1, 1980 on other certificated vessels, the life-raft must show on or near the life-raft's nameplate, and the life-raft's container must show on or near the plate, marking approved by a Coast Guard inspector that is—

(i) An approval number consisting of "160.051/" followed by a number that is greater than 49 followed by a revision number (e.g. 160.051/50/1); or

(ii) An approval number consisting of "160.051/" followed by a number that is smaller than 50 that is followed by a revision number (e.g. 160.051/48/1), the words "MOD. TEMP.", a Coast Guard inspector's initials, and the date that an inspector found that the life-raft met § 160.051-5(c)(4) of this chapter.

[CGFR 68-36, 25 FR 10642, Nov. 5, 1960, as amended by CGFR 69-116, 35 FR 6862, Apr. 30, 1970; CGD 75-040, 40 FR 58454, Dec. 17, 1975; CGD 90-008, 55 FR 30663, July 26, 1990]

§ 167.35-3 Hydraulic releases.

(a) Hydraulic releases approved under Subpart 160.062 of Subchapter Q (Specifications) of this chapter, and spring-tensioned gripes may be permitted in the installation of any life-raft, inflatable life-raft, lifefloat, or buoyant apparatus. On and after July 1, 1969, only hydraulic releases approved under Subpart 160.062 of this chapter may be used.

(b) Existing hydraulic releases may be returned to their manufacturers or to repair facilities designated by their manufacturers for the purpose of determining compliance with Subpart 160.062 of this chapter. If such a release passes the periodic servicing and testing requirements in § 160.062-4(f) of this chapter and the reconditioning work (if any) is done to the satisfaction of the Officer in Charge, Marine Inspection, the complete body marking and inspection tagging required by

§ 167.35-5

§ 160.062-5 of this chapter shall be placed on such a release indicating it is an approved item.

(c) A hydraulic release used in the installation of any life-raft, inflatable life-raft, lifefloat, or buoyant apparatus shall undergo the periodic servicing and testing required by Subpart 160.062 of this chapter every 12 months which may be extended to 15 months as determined by the date shown on its inspection tag. The springs of a spring-tensioned gripe used in such an installation shall be renewed when the accompanying hydraulic release is serviced and tested.

[CGFR 68-32, 33 FR 5724, Apr. 12, 1968]

§ 167.35-5 Life preservers.

(a) *Number required.* All nautical school ships shall be provided with one life preserver for each person carried.

(b) *Shipboard inspections.* At each annual inspection of any nautical school ship, or oftener if deemed necessary, all life preservers shall be examined by an inspector to determine serviceability. When life preservers are found to be in accordance with the requirements, the inspector shall stamp them with the word "Passed", his initials, port, and date. Life preservers found not to be in a serviceable condition shall be removed from the vessel's equipment and, if beyond repair, shall be destroyed in the presence of the inspector.

(c) *Personal flotation device lights.* Each life preserver carried on a vessel engaged in ocean, coastwise, or Great Lakes service after June 30, 1980, must have a personal flotation device light that is approved under Subpart 161.012 of this chapter. Each light must be securely attached to the front shoulder area of a life preserver.

(d) *Retroreflective material.* Each life preserver carried on a vessel after June 30, 1980, must have at least 200 sq. cm (31 sq. in.) of retroreflective material attached on its front side, at least 200 sq. cm on its back side, and at least 200 sq. cm of material on each of its reversible sides. The material must be Type I material that is approved under Subpart 164.018 of this chapter. The material attached on each side of a life preserver must be divided equal-

46 CFR Ch. I (10-1-90 Edition)

ly between the upper quadrants of the side, and the material in each quadrant must be attached as closely as possible to the shoulder area of the life preserver.

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGD 76-028, 44 FR 38788, July 2, 1979]

§ 167.35-10 Lifeboats.

Each nautical school ship shall be provided with fully equipped lifeboats of sufficient capacity to accommodate all persons on board.

§ 167.35-15 Tests of lifeboats at annual inspection.

At each annual inspection, or oftener if necessary, the inspectors shall satisfy themselves that every lifeboat, together with its equipment, is in every respect to good condition and ready for immediate use. Every lifeboat, with its required equipment, shall be lowered to near the water and loaded to its allowed capacity, evenly distributed throughout its length, and then lowered into the water afloat. In making this test, persons or satisfactory deadweight may be used. If persons are used, the weight of each person shall average at least 165 pounds. When deadweight is used, the weight shall be equivalent to at least 165 pounds for each person allowed.

§ 167.35-20 Air tanks in lifeboats.

Before any lifeboat is passed and accepted, the air tanks if installed shall be tested in the presence of an inspector by an air pressure of not more than 1 pound per square inch. At each subsequent annual inspection, or oftener if necessary or desirable, the inspectors shall satisfy themselves that the air tanks are in good condition, but pressure need not be applied unless the inspectors are in doubt regarding the efficiency of the tanks. This does not take from the inspectors the right and authority to satisfy themselves at any time, either by examination or pressure, as to the condition of the air tanks.

167.35-25 Numbering and marking of lifeboats.

(a) The number of each lifeboat shall be plainly marked or painted on each side of the bow in figures three inches high; and, where lifeboats are carried on both sides of a vessel, the odd-numbered boats shall be stowed on the starboard side and even-numbered boats on the port side; i.e., lifeboat No. 1 shall be forward on the starboard side, and lifeboat No. 3 next abaft lifeboat No. 1; lifeboat No. 2 shall be forward on the port side and lifeboat No. 4 next abaft lifeboat No. 2, etc. Where lifeboats are nested, the lifeboat under lifeboat No. 1 shall be numbered 1a, the lifeboat under lifeboat No. 2 shall be numbered 2a, etc.

(b) The cubical contents and number of persons allowed to be carried on each lifeboat shall be plainly marked or painted on each side of the bow in letters and numbers 1½ inches high. In addition, the number of persons allowed shall be plainly marked or painted on the top of at least two of the thwarts in letters and numbers three inches high.

(c) Such letters and numbers required by paragraphs (a) and (b) of this section shall be dark on a light background or light on a dark background.

(d) The top of thwarts, side benches and footings of lifeboats shall be painted or otherwise colored international orange. The area in way of the mechanical disengaging gear control shall be painted or otherwise colored white, to provide a contrasting background for the control.

(e) Where mechanical disengaging apparatus is used, the control effecting the release of the lifeboat shall be painted bright red.

CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 62-8, 27 FR 4173, May 2, 1962]

167.35-30 Care of lifeboats.

Lifeboats shall be stripped, cleaned, and thoroughly overhauled, at least once in every year.

167.35-35 Davits.

All lifeboats shall be carried under davits of approved types. Davits ap-

proved by the Navy may be used. More than one type of davit may be carried on any one vessel.

§ 167.35-40 Strength and operation of davits.

The davits shall be of such strength that the boats can be lowered with their full complement of persons and equipment.

§ 167.35-45 Releasing gear or disengaging apparatus.

More than one type of approved releasing gear or disengaging apparatus may be installed in the lifeboats on any one nautical school ship. Releasing gear approved by the Navy may be used.

§ 167.35-50 Inspection of releasing gear or disengaging apparatus.

The inspectors, when inspecting or reinspecting vessels, shall carefully examine the releasing gear or disengaging apparatus and the blocks and falls thereof to satisfy themselves that the same are in good condition.

§ 167.35-60 Lifeboat equipment.

The equipment specified in this section shall be provided for each lifeboat. This equipment need not be stowed in the lifeboat but shall be readily available for emergency use. The lifeboat, except where otherwise specified in this subpart, shall be equipped as follows:

(a) *Bailer.* One bailer of sufficient size and suitable for bailing with lanyard attached.

(b) *Boathooks.* Two boathooks of clear-grained white ash of suitable length but not less than 8 feet long by 1½ inches in diameter.

(c) *Bucket.* One galvanized iron bucket of about 2-gallon capacity, with lanyard attached.

(d) *Compass.* One compass.

(e) *Distress signals.* Twelve hand red flare distress signals in a watertight container, and four floating orange smoke distress signals; or twelve hand red flare distress signals in a watertight container, and twelve hand orange smoke distress signals in a watertight container; or twelve hand combination flare and smoke distress

signals in a watertight container. The service use shall be limited to a period of three years from date of manufacture, and replacement shall be made no later than the first annual inspection of the vessel after the date of expiration.

(f) *Ditty bag.* One canvas bag containing sailmaker's palm, needles, sail twine, marline, and marline spike.

(g) *Drinking cups.* Two drinking cups.

(h) *Flashlight.* One flashlight.

(i) *Hatchets.* Two hatchets attached to the boat by individual lanyards and readily available for use, one at each end of the boat.

(j) *Lantern.* One lantern containing sufficient oil to burn at least 9 hours and ready for immediate use.

(k) *Life line.* When necessary a life line, or grab line, properly secured the entire length on each side, festooned in bights not longer than 3 feet, with a seine float in each bight, which float may be omitted if the line is of an inherently buoyant material and absorbs little or no water. The life line shall be of a size and strength not less than 3/4-inch diameter manila. The bights shall hang to within 12 inches of the water when the lifeboat is light.

(l) *Life preservers or life buoys.* Two life preservers or two life buoys.

(m) *Mast and sails.* A mast or masts with at least one good sail and proper gear for each, the sail and gear to be protected by a suitable canvas cover. Where a nautical school ship in the North Atlantic north of 35° north latitude is provided with a radiotelegraph installation, only one of the lifeboats on each side of the nautical school ship shall be required to be so equipped.

(n) *Matches.* One box of friction matches in a watertight container.

(o) *Oars.* A single banked complement of oars, two spare oars, and a steering oar with rowlock or becket. Motor lifeboats and lifeboats fitted with propellers operated by hand shall be equipped with four oars and one steering oar.

(p) *Painter.* One painter of manila rope not less than 2 3/4 inches in circumference and a length not less than three times the distance between the boat deck and the light draft.

(q) *Plugs.* Each drain hole shall be provided with two plugs or caps attached by chains, or with one cap attached by chain to the lifeboat if the cap is fitted with a setscrew to prevent its being taken off without removing the setscrew.

(r) *Provisions.* Two pounds of provisions for each person consisting of hard bread or its equivalent in any emergency ration approved by the Coast Guard or Navy of cereal or vegetable compound packaged in hermetically sealed containers.

(s) *Rowlocks.* One set and a half of rowlocks, each attached to the lifeboat by a separate chain.

(t) *Rudder.* One rudder and tiller.

(u) *Sea anchor.* One sea anchor.

(v) *Signaling mirrors.* Two signaling mirrors.

(w) *Storm oil.* One container holding 1 gallon of vegetable or animal oil, so constructed that the oil can be easily distributed on the water and so arranged that it can be attached to the sea anchor.

(x) *Water.* For each person at least 1 quart of drinking water contained in hermetically sealed cans of a type approved by the Coast Guard or Navy.

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 57-18, 22 FR 3471, May 17, 1957; CGFR 58-44, 23 FR 8984, Nov. 9, 1958]

§ 167.35-65 Motor lifeboat equipment.

(a) *Equipment required.* In addition to the equipment required by § 167.35-60, the following items shall also be carried:

(1) Two portable fire extinguishers having Coast Guard classification B-1, C-1. (Carbon dioxide or dry chemical type approved by the Coast Guard or the Navy.)

(2) One tool kit containing at least:

(i) One 12-ounce ball peen hammer.

(ii) One screwdriver with 6-inch blade.

(iii) One pair 8-inch slip joint pliers.

(iv) One 8-inch adjustable end wrench.

(b) *Motor and accessories.* (1) The engine for motor-propelled lifeboats shall be of a reliable, marine, heavy-duty type, permanently installed inside the lifeboat.

(2) Motor-propelled lifeboats certified for 100 or more persons shall be fitted with at least two bilge pumps, one of which shall be an efficient hand pump. Each bilge pump shall be capable of pumping from each compartment. Motor-propelled lifeboats certified for less than 100 persons shall be fitted with one bilge pump, either hand or power, having suitable connections or drainage to different parts of the lifeboat.

(c) *Equipment not required.* A motor-propelled lifeboat need not carry a mast or sails nor more than four rowing oars and one steering oar.

CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by 21 FR 6713, Sept. 6, 1956; CGFR 62-17, 27 FR 9047, Sept. 11, 1962]

§ 167.35-70 Portable radio apparatus.

(a) Each nautical school ship shall be provided with a portable radio apparatus complying with the requirements of the Federal Communications Commission, unless at least one lifeboat on each side of the vessel is fitted with a fixed radio installation. The apparatus shall be so designed that it may be used by an unskilled person.

(b) The portable radio apparatus shall be kept in the radio room, chart room, or other suitable location ready to be moved to one or other of the lifeboats in the event of an emergency.

CGFR 61-52, 26 FR 11909, Dec. 31, 1961]

§ 167.35-72 Emergency position indicating radiobeacon (EPIRB).

(a) Each vessel in ocean and coastwise service must have an approved Class A emergency position indicating radiobeacon (EPIRB) that is—

- (1) Operative;
- (2) Stowed where it is readily accessible for testing and use; and
- (3) Stowed in a manner so that it will float free if the vessel sinks.

(b) Compliance with paragraph (a) of this section is not required for a coastwise vessel—

(1) That carries a VHF radiotelephone that complies with the FCC requirements; and

(2) Whose Certificate of Inspection is endorsed for a route which does not extend more than 20 miles from a

harbor of safe refuge. (49 CFR 1.4(b)(1)(ii) and 1.46(b))

(c) Each vessel certificated for Great Lakes service, and each other vessel operating on the Great Lakes that is not required to have a Class A EPIRB meeting paragraph (a) of this section must have two Class C EPIRB's installed—

- (1) In a weather tight enclosure;
- (2) In a readily accessible location;
- (3) One on each side of the vessel; and
- (4) At or near the principal embarkation stations.

[CGD 73-24R, 39 FR 10139, Mar. 18, 1974, as amended by CGD 80-024, 49 FR 40409, Oct. 16, 1984]

§ 167.35-75 Handling of lifeboats.

All the lifeboats shall be stowed in such a way that they can be launched in the shortest possible time and that, even under unfavorable conditions of list and trim from the point of view of the handling of the lifeboats, it may be possible to embark in them as large a number of persons as possible.

§ 167.35-80 Life buoys.

(a) *Number required.* (1) The minimum number of life buoys and the minimum number to which water lights shall be attached shall be in accordance with the following table:

TABLE 167.35-80(a)—LIFE BUOYS

Length of nautical school ship	Minimum number of life buoys	Minimum number of life buoys with water lights attached
Under 100 feet.....	2	0
100 feet and under 200 feet.....	4	2
200 feet and under 300 feet.....	6	2
300 feet and under 400 feet.....	12	4
400 feet and under 600 feet.....	18	9
600 feet and under 800 feet.....	24	12
800 feet and over.....	30	15

(2) One life buoy on each side of a vessel shall have an attached line at least 15 fathoms in length.

(b) *Distribution and securing of life buoys and water lights.* All life buoys and water lights shall be distributed and secured as follows:

(1) All life buoys shall be so placed as to be readily accessible to the persons on board, and their positions plainly indicated so as to be known to the persons concerned.

(2) The life buoys shall always be capable of being cast loose, and shall not be permanently secured in any way.

(c) *Water lights.* Each water light must be an approved automatic electric type, constructed in accordance with Subpart 161.010 of this chapter or approved by the U.S. Navy; except a water light constructed in accordance with former Subpart 160.012 or 161.001 of this chapter that was installed before January 1, 1972, may be retained in an existing installation as long as it is maintained in good condition.

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGD 79-165a, 45 FR 46188, Sept. 29, 1980]

§ 167.35-85 Line-throwing appliances.

(a) *Requirements.* All nautical school ships (regardless of tonnage or manner of propulsion) engaged on international voyages and all nautical school ships of 500 gross tons and over, shall be equipped with an approved line-throwing appliance, and equipment auxiliary thereto, of the impulse-projected rocket type, the requirements for which are set forth in Subpart 160.040 of Subchapter Q (Specifications) of this chapter. All nautical school ships of 150 gross tons and over and less than 500 gross tons, shall be equipped with an approved line-throwing appliance, and equipment auxiliary thereto, of the shoulder gun type or the impulse-projected rocket type, the requirements for which are set forth in Subparts 160.031 and 160.040, respectively, of Subchapter Q (Specifications) of this chapter. The line-throwing appliances shall be approved by the Coast Guard or the Navy. Service use of rockets shall be within four years from date of manufacture. Lyle gun type line-throwing appliances already in service may be continued in use so long as in good and serviceable condition in lieu of impulse-projected rocket type or shoulder gun type line-throwing appliances: *Provided*, That any replacements shall be made with a line-throw-

ing appliance of the impulse-projected rocket type or shoulder gun type, as applicable.

(b) *Accessibility.* The line-throwing appliance and its equipment shall be kept always easily and immediately accessible and ready for use. No part of this equipment shall be used for any other purpose.

(c) *Drills.* The master of a nautical school ship equipped with a line-throwing appliance shall drill his crew in its use and require it to be fired at least once in every 3 months. Each drill shall be recorded in the nautical school ship's log book. The service line shall not be used for drill purposes. The drills shall be conducted as follows:

(1) For impulse-projected rocket type, by actually firing the rocket with any ordinary line of proper length attached; or,

(2) For shoulder gun type, by actual firing, using the regular cartridge and projectile with any ordinary line of proper length; or,

(3) For Lyle gun type, by actual firing, using one-half the usual charge of powder with regular service projectile and any ordinary line of proper length.

§ 167.35-90 Embarkation ladders.

Nautical school ships shall be provided with flexible ladders to enable people to descend to lifeboats, one such ladder being provided for each set of boat davits. These ladders shall be kept ready and convenient for use on the lifeboat deck, and shall reach from such deck to the nautical school ship's light water line.

Subpart 167.40—Certain Equipment Requirements

§ 167.40-1 Electrical installations.

(a) Except as otherwise provided by law or regulation in this part, the electrical equipment may be considered acceptable if it complies with the requirements covered by any one of the following:

(1) U.S. Navy Standard Construction Specifications currently in effect.

(2) U. S. Coast Guard electrical engineering requirements in Subchapter J

Electrical Engineering) of this chap-

3) American Institute of Electrical Engineers Standard No. 45, 1945 or 48 Revision. These standards may be purchased from the American Institute of Electrical Engineers, New York, N. Y.

b) Changes or alterations in the electrical installations of vessels now in service shall be in accordance with standards set forth in paragraph (a) of this section.

c) Special attention shall be given by the inspectors in the examination of the present installation to see that it is of such nature as to preclude any danger of fire, giving particular attention to wiring which is carried through wooden bulkheads, partitions, etc.

CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 52-43, 17 FR 9543, Oct. 1952]

§ 167.40-5 Alarm bells.

All nautical school ships over 100 gross tons shall have all sleeping accommodations, public spaces, and machinery spaces equipped with a sufficient number of alarm bells so located as to warn all occupants. The system shall operate from a continuous source of electric energy capable of supplying the system for a period of at least 8 hours without being dependent upon the main, auxiliary or emergency generating plants. Each bell shall produce a signal of a tone distinct from that of other bell signals in the vicinity and shall be independently fused, with each of these fuses located above the bulkhead deck. The bells shall be controlled by a manually-operated contact maker located in the pilothouse. The characteristics of the contact maker shall be such that it possesses:

- a) Positive contact;
- b) Watertightness (when located in open spaces subject to weather);
- c) Means whereby its electrically open or closed position can be determined by sense of touch;
- d) Means to affect a make-or-break circuit for signaling; and
- e) Self-maintaining contacts.

§ 167.40-7 Voice tubes, telephone, and telegraph systems.

(a) Each nautical school ship shall be fitted with an efficient means of communication between the pilothouse and engine room. This may be by bell signals with voice tubes, telephone, or telegraph systems.

(b) A voice tube or telephone system between the radio room and the navigating bridge shall be provided when the nautical school ship is equipped with a radio installation.

(c) A voice tube or telephone system between the pilothouse and emergency steering station shall be provided when the nautical school ship is equipped with an emergency steering station.

§ 167.40-20 Deep-sea sounding apparatus.

Nautical school ships shall be equipped with an efficient or electronic deep-sea sounding apparatus in addition to the ordinary deep-sea hand lead. The electronic deep-sea sounding apparatus required shall be installed, kept in working order, and ready for immediate use.

[CGFR 58-10, 23 FR 4686, June 26, 1958, as amended by CGD 75-074, 42 FR 5964, Jan. 31, 1977]

§ 167.40-25 Signaling lamp.

Nautical school ships of over 150 gross tons shall be equipped with an efficient signaling lamp. This lamp shall be permanently fixed above the bridge and equipped with a Fresnel lens and high-speed bulb, operated by a weatherproof key, fitted with a suitable condenser. The lamp shall be so connected that it can be operated from the normal source of the nautical school ship's current, the emergency source, and other emergency batteries if provided.

§ 167.40-30 Guards and rails.

On nautical school ships all exposed and dangerous places, such as gears and machinery shall be properly protected with covers, guards, or rails, in order that the danger of accidents may be minimized. On nautical school ships equipped with radio (wireless) the lead-ins shall be efficiently incased or insulated to insure the protection of

§ 167.40-35

persons from accidental shock. Such lead-ins shall be located so as not to interfere with the launching of lifeboats and life rafts.

§ 167.40-35 Motion-picture projectors.

(a) Motion-picture projectors of the 16 mm. or 8 mm. size, using only slow-burning films, need not be of an approved type and may be used without booths.

(b) Motion-picture projectors using the 35 mm. size, unless mounted on weather deck shall be used in booths, in accordance with § 72.05-60 of Subchapter H (Passenger Vessels) of this chapter or applicable Navy specifications.

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 52-43, 17 FR 9543, Oct. 18, 1952]

§ 167.40-40 Radar.

All mechanically propelled vessels of 1,600 gross tons and over in ocean or coastwise service must be fitted with a marine radar system for surface navigation. Facilities for plotting radar readings must be provided on the bridge.

[CG FR 75-074, 42 FR 5964, Jan. 31, 1977]

§ 167.40-45 Magnetic compass and gyrocompass.

(a) All mechanically propelled vessels in ocean or coastwise service must be fitted with a magnetic compass.

(b) All mechanically propelled vessels of 1,600 gross tons and over in ocean or coastwise service must be fitted with a gyrocompass in addition to the magnetic compass.

(c) Each vessel must have an illuminated repeater for the gyrocompass required under paragraph (b) of this section that is at the main steering stand unless the gyrocompass is illuminated and is at the main steering stand.

[CFD 75-074, 42 FR 5964, Jan. 31, 1977]

Subpart 167.43—Work Vests

SOURCE: CGFR 59-22, 24 FR 4962, June 18, 1959, unless otherwise noted.

§ 167.43-1 Application.

(a) Provisions of this subpart shall apply to all vessels inspected and

46 CFR Ch. I (10-1-90 Edition)

certificated in accordance with this subchapter.

§ 167.43-5 Approved types of work vests.

(a) Each buoyant work vest carried under the permissive authority of this section must be approved under—

(1) Subpart 160.053 of this chapter; or

(2) Subpart 160.077 of this chapter as a commercial hybrid PFD.

[CGD 78-174A, 51 FR 4351, Feb. 4, 1986]

§ 167.43-25 Additional Requirements for Hybrid Work Vests.

(a) In addition to the other requirements in this subpart, commercial hybrid PFD's must be—

(1) Used, stowed, and maintained in accordance with the procedures set out in the manual required for these devices by § 160.077-29 of this chapter and any limitations(s) marked on them; and

(2) Of the same or similar design and have the same method of operation as each other hybrid PFD carried on board.

[CGD 78-174A, 51 FR 4351, Feb. 4, 1986]

§ 167.43-10 Use.

(a) Approved buoyant work vests are considered to be items of safety apparel and may be carried aboard vessels to be worn by crew members when working near or over the water under favorable working conditions. They shall be used under the supervision and control of designated ship's officers. When carried, such vests shall not be accepted in lieu of any portion of the required number of approved life preservers and shall not be substituted for the approved life preservers required to be worn during drills and emergencies.

§ 167.43-15 Shipboard stowage.

(a) The approved buoyant work vests shall be stowed separately from the regular stowage of approved life preservers.

(b) The locations for the stowage of work vests shall be such as not to be easily confused with that for approved life preservers.

7.43-20 Shipboard inspections.

(c) Each work vest shall be subject to examination by a marine inspector to determine its serviceability. If found to be satisfactory, it may be continued in service, but shall not be stamped by a marine inspector with a Coast Guard stamp. If a work vest is found not to be in a serviceable condition, then such work vest shall be removed from the vessel. If a work vest beyond repair, it shall be destroyed or mutilated in the presence of a marine inspector so as to prevent its continued use as a work vest.

Part 167.45—Special Firefighting and Fire Prevention Requirements

7.45-1 Steam, carbon dioxide, and halon fire extinguishing systems.

(a) *General requirements.* (1) Nautical school ships shall be provided with inert-gas fire-extinguishing system when required.

(2) All nautical school ships carrying combustible cargo in the holds, between decks, or other closed cargo compartments shall be equipped with means for extinguishing fire in such compartments by the use of any inert-gas fire-extinguishing system approved by the Coast Guard or Navy. However, in specific cases where by reason of the design, such compartments are normally accessible and considered to be part of the working or living quarters, a water sprinkling system may be installed in lieu of an inert-gas fire-extinguishing system. On vessels contracted for prior to January 1, 1962, a steam smothering system may be accepted in lieu of the inert gas system for the protection of cargo holds, paint lockers, and similar spaces. However, although existing steam smothering systems may be repaired, replaced, or extended, no new systems contracted for on or after January 1, 1962, will be permitted.

(3) Cabinets, boxes, or casings enclosing manifolds or valves shall be distinctly marked in painted letters about 4 inches in height, "Steam Fire Apparatus," or "CO₂ Fire Apparatus," as the case may be.

(4) Steam or gas piping fitted for extinguishing fire shall not be used for

any other purpose except that it may be used for fire-detecting purposes.

(5) Pipes for conveying steam from the boilers for the purpose of extinguishing fire shall not be led into the cabins, other living spaces, or working spaces. Pipes for conveying carbon dioxide or other extinguishing vapors for the purpose of extinguishing fire shall not be led into the cabins or other living spaces.

(6) Steam smothering lines shall be tested with at least 50 pounds air pressure with ends of the smothering lines capped, or by blowing steam through the lines, and a survey made for detecting corrosion and defects, using the hammer test or such other means as may be necessary.

(7) At annual inspections, all carbon dioxide (CO₂) cylinders, whether fixed or portable, shall be examined externally and replaced if excessive corrosion is found; and all cylinders shall also be checked by weighing to determine contents and if found to be more than 10 percent under required contents of carbon dioxide, the same shall be recharged.

(8) Carbon dioxide and halon cylinders carried on board nautical school ships must be tested and marked in accordance with the requirements of §§ 147.60 and 147.65 of this chapter.

(9) Regarding the limitations on the use of steam smothering in subparagraph (2) of this paragraph, this does not preclude the introduction of steam into such confined spaces as boiler casings or into tanks for steaming out purposes. Such installations are not to be considered as part of any required fire extinguishing system.

(b) *Steam systems.* (1) As noted in subparagraph (a)(2) of this section, steam smothering systems are not permitted on nautical school ships contracted for on or after January 1, 1962, nor for new installations on vessels contracted for prior to that date. Where steam smothering systems are installed, the provisions of this paragraph shall be met.

(2) Steam for fire-extinguishing systems shall be available at a suitable pressure from the main boilers or a donkey or auxiliary boiler.

(3) The pipe lines shall be led from not more than three stations in easily

§ 167.45-1

accessible locations on the weather deck to each cargo hold, cargo 'tween-decks, or other closed cargo compartments, and to each cargo-oil deep tank, lamp locker, oil room, and like compartments, which lamp locker, oil room, and like compartments, shall be wholly and tightly lined with metal. The steam connections to the lamp lockers, oil rooms, and like compartments may be taken from the nearest steam supply line, independent of the extinguishing manifolds. In lamp lockers, oil rooms, and like compartments, adequate means may be provided for ventilation if suitable dampers capable of being operated from outside the spaces are fitted in each vent duct.

(4) Each pipe in the extinguishing manifolds shall be fitted with a shut-off valve plainly and permanently marked to indicate into which compartment it discharges. This requirement also applies to independent extinguishing lines.

(5) Manifold steam supply pipes shall be fitted with master valves at the manifolds, and provision shall be made for draining the manifold and individual lines to protect them against freezing. If the manifolds are located on an open deck, they shall be enclosed in a metal box.

(6) The minimum diameter of any steam fire-extinguishing pipe to a cargo hold, cargo 'tween-decks, other closed cargo compartments, or cargo-oil deep tank shall be one inch, the size and number of pipes to be governed by the size of the compartment. The minimum diameter of any steam fire-extinguishing pipe to a lamp locker, oil room, or like compartments, shall be three-fourths of an inch.

(c) *Inert-gas systems.* (1) When a carbon dioxide (CO₂) smothering system is fitted in the cargo hold, cargo 'tween-decks, or other closed cargo compartments, or cargo-oil deep tanks, the quantity of carbon dioxide shall be sufficient to give a gas saturation of 30 percent of the gross volume of the largest cargo hold. The quantity in pounds of carbon dioxide required may be determined approximately by the following formula:

46 CFR Ch. I (10-1-90 Edition)

$$W = \frac{L \times B \times D}{30} \quad (1)$$

where:

W=the weight of CO₂ required, in pounds.
L=the length of the hold, in feet.
B=the mean breadth of the hold, in feet,
D=the depth from tank top or flat forming lower boundary to top of uppermost space in which freight may be carried, in feet.

(2) When a carbon dioxide (CO₂) smothering system is fitted in the lamp locker, oil room, or like compartments, the quantity in pounds of carbon dioxide required may be determined by dividing the gross volume of the space by a factor of 22. Lamp lockers, oil rooms, and like compartments, in all classes of vessels, shall be wholly and tightly lined with metal. The whole charge of gas shall be capable of being released simultaneously by operating one valve and control, and all cylinders shall be completely discharged in not more than two minutes.

(3) Pipes used for supplying carbon dioxide to the cargo holds, cargo 'tween-decks, other closed cargo compartments, and cargo-oil deep tanks shall be not less than three-fourths inch inside diameter. Pipes used for supplying carbon dioxide to lamp lockers, oil rooms, and like compartments shall not be less than one-half inch inside diameter.

(4) The control(s) releasing the inert gas shall be located in a position(s) outside the space(s) protected and shall be readily accessible when the vessel is being navigated. All valves shall be permanently marked to indicate into which compartment they discharge. A space which is protected by a carbon dioxide extinguishing system, and is normally accessible to crew while the nautical school ship is being navigated shall be fitted with an approved audible alarm in such space, which will be automatically sounded when the carbon dioxide is admitted to the space.

(5) Provisions shall be made to prevent the admission of air into the lower parts of cargo holds, cargo 'tween-decks, and other closed cargo

compartments while the inert-gas system is in operation.

(b) Cylinders, piping, and controls of the inert-gas system shall be protected from damage and shall be securely fastened and supported.

CFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 54-48, 19 FR 8708, Dec. 1954; CGFR 61-15, 26 FR 9303, Sept. 30, 1961; CGFR 65-9, 30 FR 11494, Sept. 8, 1965; CGD 84-044, 53 FR 7752, Mar. 10, 1988.

167.45-5 Steam fire pumps or their equivalent.

(a) All nautical school ships shall be equipped with fire pumps.

(b) Nautical school ships of 100 gross tons and under shall be equipped with a hand fire pump with a pump-cylinder capacity not less than 100 cubic inches, or a power-driven pump of equivalent discharge capacity.

(c) Nautical school ships over 100 gross tons shall be equipped with fire pumps and piping as follows:

(1) All nautical school ships shall be provided with powerful pumps available for use as fire pumps. When of less than 1,000 gross tons it shall have one and when larger it shall have at least 2 independently driven pumps connected to the fire main. Each pump shall be capable of delivering two powerful jets of water simultaneously from the highest outlets on the fire main at a Pitot tube pressure of approximately 50 pounds per square inch.

(2) On oil-burning nautical school ships, where two pumps are required, they may be located in the same compartment, if the compartment is equipped with an approved fixed carbon dioxide extinguishing system.

(d) Outlets from the fire mains shall be of a sufficient number and so arranged that any part of the living quarters, weather decks and any part of the cargo decks, accessible to crew, while the nautical school ship is being navigated, may be reached with a single 50-foot length of hose. Outlets in living accommodations and service spaces adjacent thereto shall comply with the above or they may be so arranged that any part may be reached with a single 75-foot length of hose provided a siamese connection is fitted

at each outlet. Where the fire main is located on an exposed deck, branches shall be provided so that the hose connections necessary to comply with the foregoing be distributed on both sides of the nautical school ship. The fire hose shall be connected to the outlet at all times, except on open decks where the location of the fire hydrants is such that no protection is afforded for the hose in heavy weather. The fire hose may be temporarily removed from the hydrant when it will interfere with the handling of cargo.

(e) Outlet openings shall have a diameter of not less than 1½ inches and shall be fitted with suitable hose connections and spanners. The arrangement of the fire hydrant shall be limited to any position from the horizontal to the vertical pointing downward, so that the hose will lead downward or horizontally, in order to minimize the possibility of kinking. In no case will a hydrant arranged in a vertical position with the outlet pointing upward be accepted.

(f) Fire pumps shall be fitted on the discharge side with relief valves set to relieve at 25 pounds higher than the pressure necessary to maintain the requirements of paragraph (c)(1) of this section and a pressure gage to indicate the pressure on the fire main. If the fire pumps operating under shut-off conditions are not capable of producing a pressure exceeding 125 pounds per square inch, the relief valve may be omitted.

(g) Each section of fire hose used after January 1, 1980 must be lined commercial fire hose that conforms to Underwriters' Laboratories, Inc. Standard 19 or Federal Specification ZZ-H-451E. Hose that bears the label of Underwriters' Laboratories, Inc. as lined fire hose is accepted as conforming to this requirement. Each section of replacement fire hose or any section of new fire hose placed aboard a vessel after January 1, 1977 must also conform to the specification required by this paragraph.

(h) Each fire hydrant must have at least one length of firehose. Each firehose on the hydrant must have a combination solid stream and water spray firehose nozzle that is approved under Subpart 162.027 of this chapter.

§ 167.45-10

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 60-36, 25 FR 10642, Nov. 5, 1960; CGD 74-60, 41 FR 43152, Sept. 30, 1976; CGD 76-086, 44 FR 2394, Jan. 11, 1979]

§ 167.45-10 Couplings on fire hose.

The couplings on fire hose shall be of brass, copper, or composition material. All hydrants shall be provided with suitable spanners.

§ 167.45-15 Capacity of pipes and hose.

The capacity of the pipes and hose leading from the pumps shall in no case be less than that of the discharge opening of the pump: *Provided, however*, That the pipe and hose shall in no instance be less than 1½ inches in internal diameter.

§ 167.45-20 Examination and testing of pumps and fire-extinguishing equipment.

The inspectors will examine all pumps, hose, and other fire apparatus and will see that the hose is subjected to a pressure of 100 pounds to the square inch at each annual inspection and that the hose couplings are securely fastened.

§ 167.45-25 Fire mains and hose connections.

All pipes used as mains for conducting water from fire pumps on nautical school ships shall be of steel, wrought iron, brass, or copper with wrought iron brass, or composition hose connections.

§ 167.45-30 Use of approved fire-fighting equipment.

Portable fire extinguishers or fire-extinguishing systems which conform to the specifications of the Navy or Coast Guard, or their approved equivalent, may be accepted for use on nautical school ships.

§ 167.45-40 Fire-fighting equipment on nautical school ships using oil as fuel.

Steam-propelled nautical school ships burning oil for fuel shall be fitted with the fire-fighting equipment of the following type and character:

(a) In each fire room a metal receptacle containing not less than 10 cubic feet of sand, sawdust impregnated

46 CFR Ch. I (10-1-90 Edition)

with soda, or other approved dry materials, and scoop or shaker for distributing it: *Provided*, That a nautical school ship of 1,000 gross tons and under using oil as fuel, shall be fitted with a metal receptacle, containing not less than 5 cubic feet of sand, sawdust impregnated with soda or other approved dry material, and scoop or shaker for distributing it.

(b) In each boiler room and in each of the machinery spaces of a nautical school ship propelled by steam, in which a part of the fuel-oil installation is situated, two or more approved fire extinguishers of the foam type of not less than 2½ gallons each or two or more approved fire extinguishers of the carbon dioxide (CO₂) type of not less than 15 pounds each shall be placed where accessible and ready for immediate use: *Provided*, That on a nautical school ship of 1,000 gross tons and under only one of the fire extinguishers may be required.

(c) In boiler and machinery spaces, at least two fire hydrants must have a firehose of a length that allows each part of the boiler and machinery spaces to be reached by the combination nozzle.

(c-1) Before February 12, 1981, each firehose under paragraph (c) of this section must have a combination solid stream and water spray nozzle and a low-velocity water spray applicator that are approved under Subpart 162.027 of this chapter, except if the nozzle or applicator has approved under Subpart 162.027 of this chapter before May 26, 1965—

(1) The nozzle must have a high-velocity water spray tump that meets § 162.027-2(c) of this chapter, and the applicator must have a low-velocity water spray applicator that meets § 162.027-2(c) of this chapter; or

(2) The fire hydrant or nozzle must have a self-cleaning strainer that meets the requirements under which the nozzle was approved.

(c-2) After February 11, 1981, each new or replacement nozzle or applicator must be approved under Subpart 162.027 of this chapter.

(d) On every steam propelled nautical school ship of over 1,000 gross tons having one boiler room there shall be provided one fire extinguisher of the

of at least 40 gallons rated capacity or one carbon dioxide (CO₂) extinguisher of at least 100 pounds. If a nautical school ship has more than one boiler room, an extinguisher of the above type shall be provided in each boiler room. On every steam propelled nautical school ship of 1,000 tons and under, foam type fire extinguishers of at least 20 gallons rated capacity or carbon dioxide (CO₂) extinguishers of at least 50 pounds shall be used. Extinguishers fitted shall be equipped with suitable hose and nozzles on reels or other practicable means easy of access, and of sufficient length to reach any part of the boiler room and spaces containing oil-pumping units.

(c) All nautical school ships propelled by internal-combustion engines shall be equipped with the following fire extinguishers in the machinery spaces:

(1) One approved 12-gallon foam-type extinguisher or one approved 35-pound carbon dioxide type extinguisher.

(2) One approved 2½-gallon foam-type, or one approved 15-pound carbon dioxide type extinguisher for each 100 B. H. P. of the main engines, or fraction thereof. The total number of extinguishers carried shall not be more than two and need not exceed six.

(3) When a donkey boiler fitted to burn oil as fuel is located in the machinery space, there shall be substituted for the 12-gallon foam type or 35-pound carbon dioxide type fire extinguisher required either one 40-gallon foam type or one 100-pound carbon dioxide type fire extinguisher.

(4) In this section any reference to an approved fire extinguisher means one approved by the Coast Guard or the Navy.

36 FR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGD 76-086, 44 FR 2394, Jan. 1979]

167.45-45 Carbon dioxide fire-extinguishing system requirements.

(a) When a carbon dioxide (CO₂) smothering system is fitted in the boiler room, the quantity of carbon dioxide carried shall be sufficient to give gas saturation of 25 percent of the gross volume of the largest boiler

room from tank top to top of the boilers. Top of the boilers is to be considered as the top of the shell of a Scotch or leg type of boiler, and the top of the casing or drum, whichever is the higher, on water-tube boilers. The quantity of carbon dioxide required may be determined approximately by the following formula:

$$W = \frac{L \times B \times D}{36} \quad (1)$$

where:

W=the weight of CO₂ required in pounds.

L=the length of the boiler room in feet.

B=the breadth of the boiler room in feet.

D=the distance in feet from tank top or flat forming lower boundary to top of boilers.

(b) When a carbon dioxide (CO₂) smothering system is fitted in the machinery space of a nautical school ship propelled by internal combustion engines, the quantity of carbon dioxide required may be determined approximately by the following formula:

$$W = \frac{L \times B \times D}{22} \quad (2)$$

where:

W=the weight of CO₂ required in pounds.

L=the length of machinery space in feet.

B=breadth of the machinery space in feet.

D=distance in feet from tank top or flat forming lower boundary to the underside of deck forming the hatch opening.

(c) The whole charge of gas shall be capable of being released simultaneously by operating one valve and control. All cylinders shall be completely discharged in not more than two minutes. The arrangement of the piping shall be such as to give a general and fairly uniform distribution over the entire area protected. An alarm which shall operate automatically with the operation of the system shall be provided to give a warning in the space when the carbon dioxide is about to be released. Provision shall be made to prevent the admission of air into the lower parts of the boiler or engine room while the system is in operation.

§ 167.45-50

§ 167.45-50 Foam smothering system requirements.

(a) When a foam-type system is fitted, its capacity shall be such as to rapidly discharge over the entire area of the bilge (tank top) of the largest boiler room a volume of foam 6 inches deep in not more than 3 minutes. The arrangement of piping shall be such as to give a uniform distribution over the entire area protected.

(b) The foam-type system may be of a type approved by the Navy or Coast Guard. All containers and valves by which the system is operated shall be easily accessible and so placed that control valves and containers will not readily be cut off from use by an outbreak of fire.

§ 167.45-55 Fixed water spray system requirements.

(a) When a fixed system is fitted for spraying water on oil in bilges, its capacity shall be such as to blanket the entire area of the bilge (tank top) of the largest boiler room with an adequate supply of water.

(b) The arrangement of piping and nozzles shall be such as to give a uniform distribution over the entire area protected. The piping system for each space protected shall be one unit, unless otherwise specifically approved by the Commandant.

(c) All valves by which the system is operated shall be located outside of the space protected and shall be easily accessible. Suitable means shall be provided to prevent the passage of foreign substances into the spray nozzles.

(d) The primary source of supply for the system shall be from a pump or pumps of suitable capacity and pressure. The pump or pumps shall be reserved for this purpose only. This pump or pumps shall be located outside of space protected.

§ 167.45-60 Emergency breathing apparatus and flame safety lamps.

All nautical school ships shall be equipped with the following devices, approved by Coast Guard or Navy:

- (a) One self-contained breathing apparatus.
- (b) One supplied air respirator.
- (c) One flame safety lamp.

46 CFR Ch. I (10-1-90 Edition)

(d) One gas mask of a type giving protection against refrigerant used on board the nautical school ship.

§ 167.45-65 Portable fire extinguishers in accommodation spaces.

(a) All nautical school ships shall be provided with such number of good and efficient portable fire extinguishers approved by the Navy or Coast Guard as follows:

(1) Nautical school ships less than 150 feet in length shall have at least two fire extinguishers on each passenger deck.

(2) Nautical school ships 150 feet and over in length shall be provided with at least one fire extinguisher for every 150 linear feet of corridor length or fraction thereof in the spaces occupied by passengers and crew.

(3) In all public spaces fire extinguishers shall be located not more than 150 feet apart.

(b) The number of required fire extinguishers is based on the capacity of the ordinary fire extinguisher, which is about 2½ gallons, and no fire extinguisher of larger capacity shall be allowed a greater rating than that of the ordinary fire extinguisher. Fire extinguishers of approved types of less capacity are allowable when their total contents equal the required quantity.

§ 167.45-70 Portable fire extinguishers, general requirements.

(a) Extra charges shall be carried on board for 50 percent of each size and variety of fire extinguishers provided. If 50 percent of each size and variety of fire extinguishers carried gives a fractional result, extra charges shall be provided for the next largest whole number.

(1) The following is an example:

Fire extinguishers carried:	Extra charges required
1.....	1
2.....	1
3.....	2
4.....	2
5.....	3

(2) When the portable fire extinguisher is of such variety that it cannot be readily recharged by the

personnel, one spare unit of the classification shall be carried of spare charges for all such of the same size and variety. recharges, particularly the acid, charging soda-and-acid type of extinguishers, shall be packed in manner that the filling operation (recharging the extinguisher) performed without subjecting person doing the recharging to risk of acid burns and shall be in Crown stopper type of

(reserved)

Fire extinguishers shall be located in such places as in the judgment of the Officer in Charge, Marine Inspection, will be most convenient and serviceable in case of emergency and so arranged that they may be easily removed from their fastenings.

Every fire extinguisher provided shall be examined at each annual inspection to determine that it is still in condition. Soda-and-acid and carbon dioxide fire extinguishers shall be tested by discharging the contents, cleaning thoroughly, and then refilling. Carbon dioxide fire extinguishers shall be tested by weighing to determine content and if found to be more than 10 percent under required contents of carbon dioxide shall be recharged. Tank fire extinguishers shall be tested by pumping and discharging the contents, cleaning thoroughly, and refilling or recharging. Cartridge-type fire extinguishers shall be tested by examining the extinguishing agents to determine if in still condition and by examining the pressure cartridge. If the cartridge end is ruptured, or if the cartridge is otherwise determined to have leaked or to be in an unsuitable condition, the pressure cartridge shall be rejected and a new one inserted. Stored pressure-type extinguishers shall be tested by determining that the pressure is in the operating range, the full charge of extinguishing agent is in the chamber. The hoses and nozzles of all fire extinguishers shall be inspected to see that they are in good condition.

51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 54-46, 19 FR 8708, Dec. 4, 1954; CGFR 59-21, 24 FR 7196; Sept. 5,

1959; CGFR 60-17, 25 FR 2667, Mar. 30, 1960; CGFR 62-17, 27 FR 9047, Sept. 11, 1962]

§ 167.45-75 Fire extinguishers for emergency powerplants.

In compartments where emergency lighting and wireless units are located, two fire extinguishers approved by the Coast Guard or the Navy, of either carbon dioxide or dry chemical type, shall be permanently located at the most accessible points. In addition, two fire extinguishers of the above types, or foam type, shall be permanently located so as to be readily accessible to the emergency fuel tanks containing gasoline, benzine or naphtha. Carbon tetrachloride type fire extinguishers shall be removed on or before January 1, 1962. Existing installations of such extinguishers may be continued in use if in good and serviceable condition until the removal date.

[CGFR 58-29, 23 FR 6882, Sept. 6, 1958]

§ 167.45-80 Fire axes.

(a) All nautical school ships shall be provided with fire axes, as follows:

	Number of axes
Gross tons of nautical school ships:	
All not over 50 tons.....	1
All over 50 tons and not over 200 tons.....	2
All over 200 tons and not over 500 tons.....	4
All over 500 tons and not over 1,000 tons.....	6
All over 1,000 tons.....	8

(b) All fire axes shall be located so as to be readily found in time of need, shall not be used for general purposes, and shall be kept in good condition.

Subpart 167.50—Accommodations

§ 167.50-1 Hospital accommodations.

Each nautical school ship, which makes voyages of more than 3 days' duration between ports and carries 12 or more persons, shall be equipped with a compartment suitably separated from other spaces for hospital purposes, and such compartment shall have at least 1 bunk for every 12 persons allowed to be carried: *Provided*, That not more than 6 bunks shall be required in any case.

**Subpart 167.55—Special Markings
Required**

§ 167.55-1 Draft marks.

Every nautical school ship of 50 gross tons and over, shall have its draft plainly and legibly marked upon the stem and upon the sternpost or rudderpost or at such other place at the stern of the vessel as may be necessary for easy observance. The draft shall be taken from the bottom of the lowest part of the keel to the surface of the water, the bottom of the mark to indicate the draft in feet.

§ 167.55-5 Marking of fire and emergency equipment, etc.

Marking of fire and emergency apparatus, watertight doors, lifeboat embarkation stations and direction signs, stateroom notices, instructions for changing steering gears, etc., shall be carried out as follows:

(a) *General alarm bell switch.* The general alarm bell switch in the pilot-house or fire control station shall be clearly marked with lettering on a brass plate or with a sign in red letters on suitable background: "General Alarm."

(b) *General alarm bells.* General alarm bells shall be marked in not less than ½-inch red letters: "General Alarm—When Bell Rings Go to Your Station."

(c) *Steam, foam or CO₂ fire smothering apparatus.* Steam, foam or CO₂ fire smothering apparatus shall be marked "Steam Fire Apparatus" or "Foam Fire Apparatus" or "CO₂ Fire Apparatus", as appropriate, in not less than 2-inch red letters. The valves of all branch piping leading to the several compartments shall be distinctly marked to indicate the compartments or parts of the nautical school ship to which they lead.

(d) *Fire hose stations.* At each fire hose valve there shall be marked in not less than 2-inch red letters and figures "Fire Station 1," 2, 3, etc.

(e) *Emergency squad equipment.* Lockers or spaces containing equipment for use of the emergency squad shall be marked "Emergency Squad Equipment." Lockers or spaces where oxygen or fresh air breathing apparatus is stowed shall be marked "Oxygen

Breathing Apparatus" or "Fresh Air Breathing Apparatus," as appropriate.

(f) *Fire extinguishers.* Each fire extinguisher shall be marked with a number and the location where stowed shall be marked in corresponding numbers in not less than 1-inch figures.

(g) *Watertight doors.* Each watertight door shall be numbered in at least 2-inch letters and figures "W.T.D. 1," 2, 3, etc. The color of the marking shall be in contrast to the background. All watertight door remote hand-closing stations shall be marked in at least 2-inch letters and figures "W. T. D. 1," 2, 3, etc. The direction of operation of the lever or wheel provided to close or open the door at all watertight door remote hand-closing stations shall be marked. The color of the sign shall contrast with the background.

(h) *Instructions for changing steering gear.* Instructions in at least ½-inch letters and figures shall be posted at each emergency steering station and in the steering engine room, relating in order, the different steps to be taken in changing to the emergency steering gear. Each clutch, gear wheel, level, valve, or switch which is used during the changeover shall be numbered or lettered on a brass plate or painted so that the markings can be recognized at a reasonable distance. The instructions shall indicate each clutch or pin to be "in" or "out" and each valve or switch which is to be "opened" or "closed" in shifting to any means of steering for which the vessel is equipped. Instructions shall be included to line up all steering wheels and rudder amidship before changing gears.

(i) *Rudder orders.* At all steering stations, there shall be installed a suitable notice on the wheel or device or at such other position as to be directly in the helmsman's line of vision, to indicate the direction in which the wheel or device must be turned for "right rudder" and for "left rudder."

(j) *Nautical school ship's name on equipment.* (1) All lifeboats, rigid type oars and paddles, life preservers, EPIRB, life buoys, fire hose, and axes shall be painted or branded with the name of the nautical school ship.

(2) There shall be stenciled in a conspicuous place in the immediate vicinity of each inflatable life raft the following:

INFLATABLE LIFE RAFT No. ———

——— PERSONS CAPACITY

These markings shall not be placed on the inflatable life raft containers.

NOTE: See § 167.35-2(e) (2) and (3) and 160.051-8 of this chapter for required markings on an inflatable life-raft and a life-raft's container.

CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 54-46, 19 FR 8708, Dec. 3, 1954; CGFR 60-36, 25 FR 10642, Nov. 5, 1960; CGD 73-24R, 39 FR 10139, Mar. 18, 1974; CGD 75-040, 40 FR 58454, Dec. 17, 1975]

Subpart 167.60—Certificates of Inspection

167.60-1 Issuance by Officer in Charge, Marine Inspection.

(a) Every nautical school ship shall be inspected annually and if in the opinion of the Officer in Charge, Marine Inspection, the nautical school ship can be operated safely, he shall issue a certificate of inspection with the following indorsement: "Nautical School Ship" in lieu of the classification "Passenger vessel", "cargo vessel", etc.

(b) When a nautical school ship, in the opinion of the Officer in Charge, Marine Inspection, may be navigated on the waters of any ocean or the Gulf of Mexico more than 20 nautical miles offshore, the route shall be designated on certificate of inspection as "Ocean".

(c) When a nautical school ship, in the opinion of the Officer in Charge, Marine Inspection, may be navigated on the waters of any ocean or the Gulf of Mexico 20 nautical miles or less offshore, the route shall be designated on the certificate of inspection as "Coastwise".

(d) Documented vessels of 500 gross tons or more, certificated for ocean or coastwise service, which do not comply with the requirements of SOLAS 74 for cargo vessels shall have their certificate of inspection endorsed "Domestic Voyages Only."

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGFR 69-127, 35 FR 9982, June 17, 1970; CGD 90-008, 55 FR 30663, July 26, 1990]

§ 167.60-5 Period of time for which valid.

A certificate of inspection for any period less than one year shall not be issued, but nothing herein shall be construed as preventing the revocation or suspension of a certificate of inspection in case such process is authorized by law.

§ 167.60-10 Exhibition of certificate of inspection.

On every nautical school ship, the original certificate of inspection shall be framed under glass and posted in a conspicuous place.

§ 167.60-15 Manning and persons allowed to be carried.

The Officer in Charge, Marine Inspection, shall specify in the Certificate of Inspection the minimum complement of officers and crew necessary for the safe navigation of the vessel and shall specify the total number of persons allowed to be carried.

[41 FR 19647, May 13, 1976]

Subpart 167.65—Special Operating Requirements

§ 167.65-1 Station bills, drills, and log book entries.

(a) *Station bills and muster lists.* It shall be the duty of the master of every nautical school ship to cause station bills and muster lists to be prepared before the nautical school ship sails, which shall be signed by the master who shall be responsible for their preparation. The station bills and muster lists shall be posted in conspicuous places in several parts of the nautical school ship, particularly in the quarters, and must contain full particulars of the signals which will be used for calling all persons to their stations for emergency duties. Special duties shall be allotted to each person and the muster lists shall show all these special duties and indicate the station to which each man must go and the duties he has to perform. The special duties should, as far as possi-

ble, be comparable to the regular work of the individual. When practicable, several members of the crew shall be designated as an emergency squad and required to report to the bridge with certain equipment for instructions. The duties provided for by the muster lists should include:

(1) The closing of airports, watertight doors, fire doors, and fire screens, the covers and all valves of all scuppers, sanitary and other discharges which lead through the ship's hull below the margin line, and stopping the fans and ventilating systems.

(2) The extinction of fire.

(3) The equipment of boats, rafts, and buoyant apparatus and their preparation for launching.

(4) The muster of all persons aboard.

(b) *Emergency signals*—(1) *Fire alarm signals*. (i) The general fire alarm signal shall be a continuous rapid ringing of the ship's bell for a period not less than 10 seconds supplemented by the continuous ringing of the general alarm bells for not less than 10 seconds.

(ii) For dismissal from fire-alarm stations, the general alarm bells shall be sounded three times, supplemented by three short blasts of the whistle.

(2) *Boat station or boat drill signals*.

(i) The signal for boat drill or boat stations shall be more than six short blasts and one long blast of the whistle, supplemented by the same signal on the general alarm bells.

(ii) Where whistle signals are used for handling boats, they shall be as follows:

(a) To lower boats, one short blast of the whistle.

(b) To stop lowering the boats, two short blasts of the whistle.

(c) For dismissal from boat stations, three short blasts of the whistle.

(3) *Other emergency signals*. The master of any vessel may establish such other emergency signal, in addition to the above, so that all persons will have positive and certain notice of the existing emergency. The signals used for the assembly of the emergency squad should not conflict with the navigational signals or the signals used for a general alarm.

(c) *Drills, tests, and inspection*. (1) It shall be the duty of the master or the

mate or officer in command, once at least in each week, to call all hands to quarters and exercise them, weather permitting, in the unlashing and swinging out of the lifeboats, the closing of all hand or power-operated watertight doors which are in use at sea, closing all fire doors and fire screens, the use of fire pumps and all other apparatus for the safety of life on board of such vessels, with special regard for the drill of the crew in the method of adjusting life preservers and educating others in this procedure, and to see that all the equipments required by law are in complete working order for immediate use; the fact of exercise of the crew, as herein contemplated, shall be entered in the log book.

(2) The requirements relating to fire and boat drills contemplate that such drills shall be conducted precisely as though an emergency existed. To accomplish the purpose of this section, lifeboat covers and strongbacks shall be removed, plugs or caps put in place, boat ladders secured in position for use, painters carried forward and tended so as to provide a good lead and slack to hold the boat in position under the davits when in the water. The person in charge of each lifeboat or life raft should have a list of its crew and should see that the men under his orders are acquainted with their several duties. The hand pumps and fire pumps shall be operated long enough and a sufficient number of outlets used to insure that such equipment is in order and effectual. The motor and the hand-operated propeller gear of each lifeboat shall be operated for a period of not less than 5 minutes once at least in every 7 days, in order that it may be ready for service at any time. Such operation shall be a part of the lifeboat drill and the fact of such operation shall be made a part of the report of such drill. When emergency breathing apparatus, such as gas masks, or other special equipment is carried, certain members of the crew shall be trained in the use of the equipment.

(3) The master shall make sure that each EPIRB other than an EPIRB in an inflatable life-raft—

(1) Is tested monthly, using the visual or audible output indicator, to determine that it is operative; and—

(i) Has its battery replaced—

(A) Immediately after the EPIRB is used for purposes other than testing, and—

(B) On or before the marked expiration date.

(4) The master shall ensure that each personal flotation device light that has a non-replaceable power source is replaced on or before the expiration date of the power source.

(5) The master shall ensure that—

(i) Each replaceable power source for a personal flotation device light is replaced on or before its expiration date; and

(ii) The light is replaced when it is no longer serviceable.

(d) *Log book entries.* The entries in the log book relating to the exercise of the crew in fire and boat drills shall state the day of the month and the hour when so exercised, length of time of the drill, number on the boats swung out, number of lengths of hose used, together with a statement of the condition of all fire and lifesaving apparatus, watertight door mechanism, valves, etc.

[CGFR 51-11, 16 FR 3218, Apr. 12, 1951, as amended by CGD 76-028, 44 FR 38788, July 2, 1979; CGD 80-024, 49 FR 40409, Oct. 16, 1984]

§ 167.65-3 Reckless or negligent operation prohibited by law.

Section 12(d) of the Federal Boat Safety Act of 1971 (46 U.S.C. 1461(d)) reads as follows:

No person may use a vessel, including one otherwise exempted by section 4(c) of this Act (46 U.S.C. 1453(c)), in a negligent manner so as to endanger the life, limb, or property of any person. Violations of this subsection involving use which is grossly negligent, subject the violator, in addition to any other penalties prescribed in this Act, to the criminal penalties prescribed in section 34 (46 U.S.C. 1483).

[CGD 77-052, 42 FR 56332, Oct. 25, 1977]

§ 167.65-5 Flashing the rays of a searchlight or other blinding light.

Flashing the rays of a searchlight or other blinding light onto the bridge or

into the pilothouse of any vessel under way is prohibited.

§ 167.65-10 Unauthorized lights.

Any master or pilot of a nautical school ship shall not authorize or permit the carrying of any light, electric or otherwise, not required by law that in any way will interfere with distinguishing the lights required to be carried.

§ 167.65-15 Routing instructions; strict compliance with.

Due to existing mine field dangers, all masters, officers, and seamen on nautical school ships shall comply strictly with the routing instructions issued by competent naval authority. Nothing herein shall be construed as relieving the master of the responsibility for the safety of his nautical school ship.

§ 167.65-20 Unnecessary whistling.

Unnecessary sounding of a nautical school ship's whistle is prohibited within any harbor limits of the United States.

§ 167.65-25 Steering gear tests.

On all nautical school ships making voyages of more than 48 hours' duration, the entire steering gear, the whistle, the means of communication and the signaling appliances between the bridge or pilothouse and engine room shall be examined and tested by an officer of the nautical school ship within a period of not more than 12 hours before leaving port. All nautical school ships making voyages of less than 48 hours' duration shall be so examined and tested at least once in every week. The fact and time of such examination and test shall be recorded in the log book.

§ 167.65-30 Steering orders.

(a) "Right rudder" shall be given only when it is intended that the wheel, the rudder blade, and the head of the nautical school ship should go to the right.

(b) "Left rudder" shall be given only when it is intended that the wheel, the rudder blade, and the head of the nautical school ship should go to the left.

§ 167.65-35

(c) Where rudder indicators are provided, they shall be installed consistent with the foregoing.

§ 167.65-35 Use of auto pilot.

Except as provided in 33 CFR 164.15, when the automatic pilot is used in—

(a) Areas of high traffic density;
(b) Conditions of restricted visibility;
and

(c) All other hazardous navigational situations, the master shall ensure that—

(1) It is possible to immediately establish human control of the ship's steering;

(2) A competent person is ready at all times to take over steering control; and

(3) The changeover from automatic to manual steering and vice versa is made by, or under, the supervision of the officer of the watch.

[CFR 75-074, 42 FR 5964, Jan. 17, 1977]

§ 167.65-40 Draft.

The master of every nautical school ship over 50 gross tons shall, whenever leaving port, enter the maximum draft of his nautical school ship in the log book.

§ 167.65-45 Notice to mariners; aids to navigation.

(a) Officers are required to acquaint themselves with the latest information published by the Coast Guard and the U.S. Navy regarding aids to navigation, and neglect to do so is evidence of neglect of duty. It is desirable that nautical school ships navigating oceans and coastwise and Great Lakes waters shall have available in the pilothouse for convenient reference at all times a file of the applicable Notice to Mariners.

(b) Weekly Notices to Mariners (Great Lakes Edition), published by the Commander, 9th Coast Guard District, contain announcements and information on changes in aids to navigation and other marine information affecting the safety of navigation on the Great Lakes. These notices may be obtained free of charge, by making application to Commander, 9th Coast Guard District.

(c) Weekly Notices to Mariners (Worldwide coverage) are prepared

46 CFR Ch. I (10-1-90 Edition)

jointly by the U.S. Naval Oceanographic Office, the U.S. Coast and Geodetic Survey and the U.S. Coast Guard. They include changes in aids to navigation in assembled form for the 1st, 3d, 5th, 7th, Greater Antilles Section, 8th, 11th, 12th, 13th, 14th, and 17th Coast Guard Districts. Foreign marine information is also included in these notices. These notices are available without charge from the U.S. Naval Oceanographic Office, Washington, DC 20390, Branch Oceanographic Offices, U.S. Collector of Customs of the major seaports in the United States and are also on file in the U.S. Consulates where they may be inspected.

(d) As appropriate for the intended voyage, all nautical school ships must carry adequate and up-to-date—

- (1) Charts;
- (2) Sailing directions;
- (3) Coast pilots;
- (4) Light lists;
- (5) Notices to mariners;
- (6) Tide tables;
- (7) Current tables; and
- (8) All other nautical publications necessary.¹

[CGFR 75-033, 31 FR 15298, Dec. 6, 1966, as amended by CGFR 75-074, 42 FR 5964, Jan. 31, 1977]

§ 167.65-50 Posting placards of lifesaving signals and breeches buoy instructions.

On all vessels to which this subpart applies there shall be readily available to the deck officer of the watch a placard (Form CG-811) containing instructions for the use of breeches buoys and the lifesaving signals set forth in Regulation 16, Chapter V, of the International Convention for Safety of Life at Sea, 1974. These signals shall be used by vessels or persons in distress when communicating with lifesaving stations and maritime rescue units.

[CGD 87-031a, 53 FR 27688, July 22, 1988]

¹ For United States vessels in one or on the navigable waters of the United States, see 33 CFR 164.33.

167.65-55 Posting placards containing instructions for launching and inflating inflatable life-rafts.

(a) Every vessel equipped with inflatable life-rafts shall have posted in conspicuous places which are regularly accessible to the crew and/or passengers, approved placards containing instructions for launching and inflating inflatable life-rafts for the information of persons on board. The number and location of such placards for a particular vessel shall be as determined by the Officer in Charge, Marine Inspection.

(b) Under the requirements contained in § 160.051-6(c)(1) in Subchapter Q (Specifications) of this chapter, the manufacturer of approved inflatable life-rafts is required to provide approved placards containing such instructions with each life-raft.

CGFR 65-9, 30 FR 11494, Sept. 8, 1965]

167.65-60 Examination of boilers and machinery by engineer.

It shall be the duty of an engineer when he assumes charge of the boilers and machinery of a nautical school ship to examine the same forthwith and thoroughly, and if he finds any part thereof in bad condition, he shall immediately report the facts to the master, owner, or agent, and to the Officer in Charge, Marine Inspection, of the district, who shall thereupon investigate the matter and take such actions as may be necessary.

167.65-65 Notice and reporting of casualty and voyage records.

The requirements for providing notice and reporting of marine casualties and for retaining voyage records are contained in Part 4 of this chapter.

CGD 84-099, 52 FR 47536, Dec. 14, 1987]

167.65-70 Reports of accidents, repairs, and unsafe boilers and machinery by engineers.

(a) Before making repairs to a boiler of a nautical school ship the engineer in charge shall report, in writing, the nature of such repairs to the nearest Officer in Charge, Marine Inspection, where such repairs are to be made.

(b) And it shall be the duty of all engineers when an accident occurs to the

boilers or machinery in their charge tending to render the further use of such boilers or machinery unsafe until repairs are made, or when, by reason of ordinary wear, such boilers or machinery have become unsafe, to report the same to the Officer in Charge, Marine Inspection, immediately upon the arrival of the nautical school ship at the first port reached subsequent to the accident, or after the discovery of such unsafe condition by said engineer.

PART 168—CIVILIAN NAUTICAL SCHOOL VESSELS

Subpart 168.01—Authority and Purpose

Sec.

168.01-1 Purpose of regulations.

168.01-5 Assignment of functions.

168.01-10 Authority for regulations.

Subpart 168.05—General Requirements

168.05-1 Application of passenger vessel inspection laws.

168.05-5 Application of passenger vessel inspection regulations.

168.05-10 Subdivision and stability.

168.05-15 Right of appeal.

Subpart 168.10—Definitions of Terms Used in this Part

168.10-1 Vessel.

168.10-5 Civilian nautical school.

Subpart 168.15—Accommodations

168.15-1 Intent.

168.15-5 Location.

168.15-10 Construction.

168.15-15 Size.

168.15-20 Equipment.

168.15-25 Washrooms.

168.15-30 Toilet rooms.

168.15-35 Hospital space.

168.15-40 Lighting.

168.15-45 Heating.

168.15-50 Ventilation.

168.15-55 Screening.

168.15-60 Inspection.

AUTHORITY: 46 U.S.C. 3306; 46 U.S.C. App. 1295g; 49 CFR 1.46.

SOURCE: CGFR 52-43, 17 FR 9543, Oct. 18, 1952, unless otherwise noted.

§ 168.01-1

Subpart 168.01—Authority and Purpose

§ 168.01-1 Purpose of regulations.

(a) The purpose of the regulations in this part is to set forth uniform minimum requirements for vessels, whether being navigated or not, which are used by or in connection with any civilian nautical school, except vessels of the Navy or Coast Guard.

§ 168.01-5 Assignment of functions.

(a) The Department of Transportation Act (Pub. L. 89-670, 80 Stat. 931-950, 49 U.S.C. 1651-1659), transferred to and vested in the Secretary of Transportation "... all functions, powers, and duties, relating to the Coast Guard, of the Secretary of the Treasury and of other officers and offices of the Department of the Treasury" (subsection 6(b)(1), 49 U.S.C. 1655(b)). This transfer is subject to certain conditions, modifications, and exceptions as set forth in such act. By a rule in 49 CFR 1.4(a) the Secretary of Transportation delegated to the Commandant, U.S. Coast Guard, authority to exercise certain functions, powers, and duties as set forth in subsections 6(a)(4), 6(b)(1), and 6(g) of such act (49 U.S.C. 1655), subject to conditions, exceptions and modifications as described in 49 CFR Part 1. By a rule in 49 CFR 1.9 the Secretary of Transportation continued in effect actions taken prior to April 1, 1967.

(b) The Commandant, U.S. Coast Guard, in a notice dated March 31, 1967, and effective April 1, 1967 (32 FR 5611), approved the continuation of orders, rules, regulations, policies, procedures, privileges, waivers, and other actions, which had been made, allowed, granted, or issued prior to April 1, 1967, and provided that they shall continue in effect according to their terms until modified, terminated, repealed, superseded, or set aside by appropriate authority.

[CGFR 68-32, 33 FR 5724, Apr. 12, 1968]

§ 168.01-10 Authority for regulations.

(a) The authority to prescribe regulations is in section 3 of the act of June 12, 1940, as amended (sec. 3, 54 Stat. 346, 46 U.S.C. 1333).

46 CFR Ch. I (10-1-90 Edition)

Subpart 168.05—General Requirements

§ 168.05-1 Application of passenger vessel inspection laws.

(a) All laws covering the inspection of passenger vessels are hereby made applicable to all vessels or other floating equipment used by or in connection with any civilian nautical school, whether such vessels or other floating equipment are being navigated or not, except vessels of the Navy or Coast Guard.

§ 168.05-5 Application of passenger vessel inspection regulations.

(a) Where the requirements are not covered specifically in this part, all the regulations applying to passenger vessels in Subchapter E (Load Lines), F (Marine Engineering), H (Passenger Vessels), J (Electrical Engineering), P (Manning), Q (Specifications), and T (Small Passenger Vessels) of this chapter are hereby made applicable to all vessels or other floating equipment used by or in connection with any civilian nautical school, whether such vessels or other floating equipment are being navigated or not, except vessels of the Navy or Coast Guard.

[CGFR 62-17, 27 FR 9047, Sept. 11, 1962]

§ 168.05-10 Subdivision and stability.

Each vessel must meet the applicable requirements in Subchapter S of this chapter.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983]

§ 168.05-15 Right of appeal.

Any person directly affected by a decision or action taken under this part, by or on behalf of the Coast Guard, may appeal therefrom in accordance with subpart 1.03 of this chapter.

[CGD 88-033, 54 FR 50381, Dec. 6, 1989]

Subpart 168.10—Definitions of Terms Used in This Part

§ 168.10-1 Vessel.

(a) The term "vessel" means any vessel, whether being navigated or not, which is used by or in connection with

Coast Guard, DOT

§ 168.15-20

any civilian nautical school, except vessels of the Navy or Coast Guard.

§ 168.10-5 Civilian nautical school.

(a) The term "civilian nautical school" means any school or branch thereof operated and conducted in the United States (except State nautical schools and schools operated by the United States or any agency thereof) which offers to persons quartered on board any vessel instruction for the primary purpose of training for service in the merchant marine.

Subpart 168.15—Accommodations

§ 168.15-1 Intent.

(a) It is the intent of this subpart to provide minimum standards for the size, ventilation, plumbing, and sanitation of quarters assigned to the members of the crew, passengers, cadets, students, instructors, or any other persons at any time quartered on board any such vessel.

§ 168.15-5 Location.

(a) Quarters shall be located so that sufficient fresh air and light are obtainable compatible with accepted practice or good arrangement and construction.

(b) Quarters shall not be located forward of the collision bulkhead, nor shall such section or sections of any deck occupied by quarters be below the deepest load line except in special cases which may be approved by the Commandant, U.S. Coast Guard.

§ 168.15-10 Construction.

(a) All quarters are to be efficiently constructed in a manner suitable to the purpose for which they are intended. Bulkheads separating accommodations from cargo and machinery spaces, lamp, paint, storerooms and drying rooms, washrooms and toilet rooms are to be efficiently constructed and made odorproof when considered necessary by the Commandant, U.S. Coast Guard.

(b) Metal decks in living quarters are to be covered with deck covering composition as approved by the Commandant, U.S. Coast Guard so as to be cleaned readily and kept sanitary. Deck coverings in hospital, wash

places, drying rooms, and toilet rooms are to be of suitable solid impervious material such as tile, cement, etc.

(c) All quarters are to be properly drained. Living accommodations are not to drain directly into washrooms or toilet rooms, each of which shall be drained separately.

(d) All washrooms and toilet rooms shall be properly drained and so constructed and arranged that they can be kept in a clean, workable, and sanitary condition. The scupper to the wash place must be of sufficient size and situated in the lowest part of the space.

§ 168.15-15 Size.

(a) Sleeping accommodations shall be divided into rooms, no one of which shall berth more than 6 persons. The purpose for which each space is to be used and the number of persons it may accommodate, shall be marked.

(b) Each room shall be of such size that there are at least 20 square feet of deck area and a volume of at least 150 cubic feet for each person accommodated. In measuring sleeping quarters, any equipment contained therein is not to be deducted from the total volume or from the deck area.

§ 168.15-20 Equipment.

(a) Each person shall have a separate berth and not more than 1 berth shall be placed above another. The berths shall be of metal framework and shall be so arranged that they provide ample room for easy occupancy. The over-all size of a berth shall not be less than 30 inches wide by 76 inches long. Where berths adjoin, they shall be divided by a partition not less than 18 inches in height. Where 2 tiers of berths are fitted, the bottom of the lower must not be less than 12 inches above the deck, and the bottom of the upper must not be less than 2 feet 6 inches both from the bottom of the lower and from the deck overhead. The berths shall not be obstructed by pipes, ventilating ducts, or other installations.

(b) A metal locker shall be provided for each person accommodated in a room. Each locker shall be not less than 18 inches by 21 inches by 60

§ 168.15-25

inches high and so placed as to be readily accessible. The interior of the locker shall be so arranged as to facilitate the proper stowage of clothes.

§ 168.15-25 Washrooms.

(a) There shall be provided 1 shower for each 10 persons or fraction thereof and 1 wash basin for each 6 persons or fraction thereof to be accommodated. The persons to be accommodated shall include all persons who do not occupy rooms to which private facilities are attached.

(b) All wash basins and showers shall be equipped with proper plumbing including hot and cold running fresh water. Wash basins may be located in the sleeping quarters if properly installed and equipped with proper plumbing.

§ 168.15-30 Toilet rooms.

(a) There shall be provided 1 toilet for each 10 persons or fraction thereof to be accommodated. The persons to be accommodated shall include all persons who do not occupy rooms to which private facilities are attached.

(b) The toilet rooms shall be separate from the washrooms and shall be located convenient to the sleeping quarters of the persons to which they are allotted but shall not open directly into such quarters except when they are provided as private or semiprivate facilities.

(c) Where more than one toilet is located in a space or compartment, each toilet shall be separated by partitions. Such partitions shall be open at the top and bottom for ventilating and cleaning purposes.

(d) Urinals may be fitted if desired, but no reduction in the required number of toilets will be made therefor.

§ 168.15-35 Hospital space.

(a) Each vessel shall be provided with a hospital space. This space shall be situated with due regard to the comfort of the sick so that they may receive proper attention in all weathers.

(b) The hospital shall be suitably separated from other spaces and shall be used for the care of the sick and for no other purpose.

46 CFR Ch. I (10-1-90 Edition)

(c) The entrance is to be of such width and in such a position as to admit a stretcher case readily. Berths are to be of metal and may be in double tier, provided the upper berth is hinged and arranged to be secured clear of the lower berth when not in use. At least one berth is to be so arranged that it can be made accessible from both sides when necessary.

(d) The hospital shall be fitted with berths in the ratio of 1 berth to every 12 persons, but the number of berths need not exceed 6. These berths, in their size and arrangement, shall comply with the provisions of § 168.15-20(a).

(e) The hospital shall have a toilet, wash basin, and bath tub or shower conveniently located. Other necessary suitable equipment of a sanitary type such as clothes locker, table, seat, etc., shall be provided.

§ 168.15-40 Lighting.

All quarters shall be adequately lighted. The minimum standard for natural lighting is that it will be possible on a clear day to read print such as that of an ordinary newspaper in any part of the clear working space. When it is not possible to provide adequate natural lighting, artificial lighting may be accepted on the same basis. Washrooms, toilet rooms, and hospital spaces are in particular to be well lighted.

§ 168.15-45 Heating.

All quarters shall be adequately heated in a manner suitable to the purpose of the space. The method of heating may be by steam, hot water apparatus, a continuous supply of warm air, or other method approved by the Commandant, U.S. Coast Guard.

§ 168.15-50 Ventilation.

(a) All quarters shall be adequately ventilated in a manner suitable to the purpose of the space and route of the vessel. The inlets shall be arranged to diffuse the inflow as widely as possible in order that the air shall be distributed without discomfort to the occupants.

(b) Except for such spaces as are located in deck houses where, under all ordinary weather conditions, the windows, ports, skylights, etc., and doors to passageways can be kept open, all spaces shall be ventilated by a mechanical system unless it can be shown that a natural system will meet the requirements outlined in paragraph (a) of this section.

(c) When washrooms are ventilated by a natural system, they may receive their supply of fresh air from well-ventilated passageways, but independent outlet ventilators must be fitted with an area of at least 10 square inches, exclusive of insect screening if fitted, for each 150 cubic feet of volume of the space ventilated.

(d) When toilet rooms are ventilated by a natural system, the fresh air must be supplied through independent inlet ventilators having a minimum area of 10 square inches, exclusive of insect screening if fitted, for each 150 cubic feet of volume of space ventilated. The outlet ventilators also must be independent to the open air and must be at least equal in size to the inlet ventilators.

(e) When mechanical ventilation is provided for sleeping rooms and mess-rooms, these spaces shall be supplied with fresh air equal to at least 10 times the volume of the room each hour and shall be so ventilated both at sea and in port when such spaces are occupied. The system shall be so designed that the impure air will exhaust in a satisfactory manner.

(f) When mechanical ventilation is provided for washrooms, toilet rooms, and hospital spaces, these spaces shall be fitted with exhaust ventilation to remove a volume of air equal to 10 times the volume of the space each hour and with adequate ventilation inlets so that it is possible to have these spaces properly ventilated when all doors and ports are closed.

§ 168.15-55 Screening.

Provision shall be made to protect the quarters against the admission of insects by the fitting of suitable screens to ventilating skylights, air-ports, ventilators, and doors to the open deck.

§ 168.15-60 Inspection.

(a) The Officer in Charge, Marine Inspection, shall inspect the quarters of every such vessel at least once in each month or at such time as the vessel shall enter an American port and shall satisfy himself that such vessel is in compliance with the regulations in this part.

(b) Whenever it shall be found that such vessel is not in compliance with the regulations in this part, the Officer in Charge, Marine Inspection, shall proceed as provided in section 4453 of the Revised Statutes of the United States, as amended (46 U.S.C. 435).

PART 169—SAILING SCHOOL VESSELS

Subpart 169.100—General Provisions

Sec.

- 169.101 Purpose.
- 169.103 Applicability.
- 169.107 Definitions.
- 169.109 Equivalents.
- 169.111 Administrative procedures.
- 169.112 Special consideration.
- 169.113 Right of appeal.
- 169.115 Incorporation by reference.
- 169.117 OMB Control numbers.
- 169.119 Vessel status.
- 169.121 Loadlines.

Subpart 169.200—Inspection and Certification

CERTIFICATE OF INSPECTION

- 169.201 When required.
- 169.203 Description.
- 169.205 How to obtain or renew.
- 169.207 Period of validity.
- 169.209 Routes permitted.
- 169.211 Permit to proceed for repair.
- 169.213 Permit to carry excursion party.
- 169.215 Certificate of inspection amendment.
- 169.217 Posting.

LETTER OF DESIGNATION

- 169.218 Procedures for designating sailing school vessels.
- 169.219 Renewal of letter of designation.

INSPECTION FOR CERTIFICATION

- 169.220 General.
- 169.221 Initial inspection for certification.
- 169.222 Scope of inspection for certification.

Pt. 169

169.223 Subsequent inspections for certification.

REINSPECTION

169.225 When required.
169.227 Scope.

DRYDOCKING OR HAULING OUT

169.229 Drydock examination and internal structural examination intervals.
169.231 Definitions relating to hull examinations.
169.233 Notice and plans required.
169.234 Integral fuel oil tank examinations.

REPAIRS AND ALTERATIONS

169.235 Permission required.
169.236 Inspection and testing required.

INSPECTIONS

169.237 Inspection standards.
169.239 Hull.
169.241 Machinery.
169.243 Electrical.
169.245 Lifesaving equipment.
169.247 Firefighting equipment.
169.249 Pressure vessels.
169.251 Steering apparatus.
169.253 Miscellaneous systems and equipment.
169.255 Sanitary inspection.
169.257 Unsafe practices.
169.259 Limitations of inspections.

Subpart 169.300—Construction and Arrangement

PLANS

169.305 Plans required.
169.307 Plans for sister vessels.

HULL STRUCTURE

169.309 Structural standards.
169.311 Fire protection.
169.313 Means of escape.
169.315 Ventilation (other than machinery spaces).

LIVING SPACES

169.317 Accommodations.
169.319 Washrooms and toilets.
169.321 Motion picture projectors and film.
169.323 Furniture and furnishings.

RAILS AND GUARDS

169.327 Deck rails.
169.329 Storm rails.
169.331 Guards in hazardous locations.

Subpart 169.400—Watertight Integrity, Subdivision, and Stability

169.401 Applicability.

46 CFR Ch. I (10-1-90 Edition)

Subpart 169.500—Lifesaving and Firefighting Equipment

LIFESAVING EQUIPMENT—GENERAL

169.505 Equipment installed but not required.
169.507 Responsibility of master.
169.509 Approval for repairs and alterations.

PRIMARY LIFESAVING EQUIPMENT

169.513 Types of primary equipment.
169.515 Number required.
169.517 Rescue boat.
169.519 Availability.
169.521 Stowage.

EQUIPMENT FOR PRIMARY LIFESAVING APPARATUS

169.525 General.
169.527 Required equipment for lifeboats.
169.529 Description of lifeboat equipment.
169.531 Required equipment for liferafts.
169.535 Required equipment for lifefloats.
169.537 Description of equipment for lifefloats.

PERSONAL FLotation DEVICES

169.539 Type required.
169.541 Number required.
169.543 Distribution and stowage.
169.545 Markings.

ADDITIONAL LIFESAVING EQUIPMENT

169.549 Ring lifebuoys and waterlights.
169.551 Exposure suits.
169.553 Pyrotechnic distress signals.
169.555 Emergency position indicating radio beacon (EPIRB).
169.556 Work vests.

FIRE FIGHTING EQUIPMENT

169.559 Fire pumps.
169.561 Firemain.
169.563 Firehose.
169.564 Fixed extinguishing system, general.
169.565 Fixed carbon dioxide system.
169.567 Portable extinguishers.
169.569 Fire axes.

Subpart 169.600—Machinery and Electrical

169.601 General.

INTERNAL COMBUSTION ENGINE INSTALLATIONS

169.605 General.
169.607 Keel cooler installations.
169.608 Grid cooler installations.
169.609 Exhaust systems.
169.611 Carburetors.

FUEL SYSTEMS

169.613 Gasoline fuel systems.

169.615 Diesel fuel systems.

STEERING SYSTEMS

169.618 General.
169.619 Reliability.
169.621 Communications.
169.622 Rudder angle indicators.
169.623 Power-driven steering systems.

VENTILATION

169.625 Compartments containing diesel machinery.
169.627 Compartments containing diesel fuel tanks.
169.629 Compartments containing gasoline machinery or fuel tanks.
169.631 Separation of machinery and fuel tank spaces from accommodation spaces.

PIPING SYSTEMS

169.640 General.
169.642 Vital systems.

BILGE SYSTEMS

169.650 General.
169.652 Bilge piping.
169.654 Bilge pumps.

ELECTRICAL

169.662 Hazardous locations.

ELECTRICAL INSTALLATIONS OPERATING AT POTENTIALS OF LESS THAN 50 VOLTS ON VESSELS OF LESS THAN 100 GROSS TONS

169.664 Applicability.
169.665 Name plates.
169.666 Generators and motors.
169.667 Switchboards.
169.668 Batteries.
169.669 Radiotelephone equipment.
169.670 Circuit breakers.
169.671 Accessories.
169.672 Wiring for power and lighting circuits.
169.673 Installation of wiring for power and lighting circuits.

ELECTRICAL INSTALLATIONS OPERATING AT POTENTIALS OF 50 VOLTS OR MORE ON VESSELS OF LESS THAN 100 GROSS TONS

169.674 Applicability.
169.675 Generators and motors.
169.676 Grounded electrical systems.
169.677 Equipment protection and enclosure.
169.678 Main distribution panels and switchboards.
169.679 Wiring for power and lighting circuits.
169.680 Installation of wiring for power and lighting circuits.
169.681 Disconnect switches and devices.
169.682 Distribution and circuit loads.
169.683 Overcurrent protection, general.

169.684 Overcurrent protection for motors and motor branch circuits.
169.685 Electric heating and cooking equipment.
169.686 Shore power.

ELECTRICAL INSTALLATIONS ON VESSELS OF 100 GROSS TONS AND OVER

169.687 General.
169.688 Power supply.
169.689 Demand loads.
169.690 Lighting branch circuits.
169.691 Navigation lights.
169.692 Remote stop stations.
169.693 Engine order telegraph systems.

Subpart 169.700—Vessel Control, Miscellaneous Systems, and Equipment

169.703 Cooking and heating.
169.705 Mooring equipment.
169.709 Compass.
169.711 Emergency lighting.
169.713 Engineroom communication system.
169.715 Radio.
169.717 Fireman's outfit.
169.721 Storm sails and halyards (exposed and partially protected waters only).
169.723 Safety belts.
169.725 First aid kit.
169.726 Radar reflector.

MARKINGS

169.730 General alarm bell switch.
169.731 General alarm bells.
169.732 Carbon dioxide alarm.
169.733 Fire extinguishing branch lines.
169.734 Fire extinguishing system controls.
169.735 Fire hose stations.
169.736 Self-contained breathing apparatus.
169.737 Hand portable fire extinguishers.
169.738 Emergency lights.
169.739 Lifeboats.
169.740 Liferafts and life floats.
169.741 Personal flotation devices and ring life buoys.
169.742 Firehose and axes.
169.743 Portable magazine chests.
169.744 Emergency position indicating radio beacon (EPIRB).
169.745 Escape hatches and emergency exits.
169.746 Fuel shutoff valves.
169.747 Watertight doors and hatches.
169.750 Radio call sign.

Subpart 169.800—Operations

169.805 Exhibition of licenses.
169.807 Notice of casualty.
169.809 Charts and nautical publications.
169.813 Station bills.
169.815 Emergency signals.
169.817 Master to instruct ship's company.

§ 169.101

- 169.819 Manning of lifeboats and liferafts.
- 169.821 Patrol person.
- 169.823 Openings.
- 169.824 Compliance with provisions of certificate of inspection.
- 169.825 Wearing of safety belts.

TESTS, DRILLS, AND INSPECTIONS

- 169.826 Steering, communications and control.
- 169.827 Hatches and other openings.
- 169.829 Emergency lighting and power systems.
- 169.831 Emergency position indicating radio beacon (EPIRB).
- 169.833 Fire and boat drills.
- 169.837 Lifeboats, liferafts, and lifefloats.
- 169.839 Firefighting equipment.
- 169.841 Logbook entries.
- 169.847 Lookouts.
- 169.849 Posting placards containing instructions for launching and inflating inflatable liferafts.
- 169.853 Display of plans.
- 169.855 Pre-underway training.
- 169.857 Disclosure of safety standards.

AUTHORITY: 33 U.S.C. 1321(j); 46 U.S.C. 3306, 5115, 6101; E.O. 11735, 38 FR 21243, 3 CFR, 1971-1975 Comp., p. 793; 49 CFR 1.45, 1.46; § 169.117 also issued under the authority of 44 U.S.C. 3507.

SOURCE: CGD 83-005, 51 FR 896, Jan. 9, 1986, unless otherwise noted.

Subpart 169.100—General Provisions

§ 169.101 Purpose.

The regulations in this part set forth uniform requirements which are suited to the particular characteristics and specialized operations of sailing school vessels as defined in Title 46, United States Code section 2101(30).

§ 169.103 Applicability.

(a) This subchapter applies to each foreign and domestic vessel operating as a sailing school vessel except as follows:

(1) A vessel of a foreign nation signatory to the International Convention for the Safety of Life at Sea and which has on board a current valid Safety Certificate; or

(2) A vessel of a foreign nation having inspection laws approximating those of the United States together with reciprocal arrangements with the United States and which has on board a current valid certificate of inspection issued by its government.

46 CFR Ch. I (10-1-90 Edition)

(b) This subchapter does not apply to—

(1) Any vessel operating exclusively on inland waters which are not navigable waters of the United States;

(2) Any vessel while laid up, dismantled, and out of service;

(3) Any vessel with title vested in the United States and which is used for public purposes except vessels of the U.S. Maritime Administration;

(4) Any vessel carrying one or more passengers; or

(5) Any vessel operating under the authority of a current valid certificate of inspection issued in accordance with the requirements of Subchapter H or T, 46 CFR Parts 70 thru 78 and Parts 175 thru 187, respectively.

(c) A vessel which engages in trade or commerce or carries one or more passengers, cannot operate under a certificate of inspection as a sailing school vessel, but must meet the rules and regulations governing the service in which it is engaged.

§ 169.107 Definitions.

(a) "Approved" means accepted by the Commandant unless otherwise stated.

(b) "Coast Guard District Commander" means an officer of the Coast Guard designated by the Commandant to command all Coast Guard activities within a district.

(c) "Commandant" means the Commandant of the Coast Guard or an authorized representative of the Commandant.

(d) "Existing vessel" means a sailing school vessel, whose keel was laid prior to (January 9, 1986), which applies for certification as a sailing school vessel prior to (January 9, 1987), and whose initial inspection for certification is completed prior to (January 9, 1988).

(e) "Exposed Waters" means waters more than 37 kilometers (20 nautical miles) from the mouth of a harbor of safe refuge, or other waters the Officer in Charge, Marine Inspection determines to present special hazards due to weather or other circumstances.

(f) "Guest" means an individual on board a sailing school vessel who is not a member of the ship's company and

that contributed any consideration, directly or indirectly, for carriage on the vessel. Guests are not considered passengers for the purpose of the regulations.

"Headquarters" means the Office of the Commandant, United States Coast Guard, Washington, DC 20593.

"Instructor" means any person aboard a sailing school vessel for the purpose of providing sailing instruction and is not an officer, operator, or member of the crew required by the regulations to be aboard the vessel, and is not paid any consideration, either directly or indirectly for his or her services on the vessel.

"Length" means the mean length between the mean or average between the perpendiculars (LOD) and length between perpendiculars (LBP). "Length between perpendiculars" (LBP) means the length between the forward-most and after-most points on the weather deck, excluding sheer. "Length between perpendiculars" (LBP) means the horizontal distance between the perpendiculars taken at the forward-most and after-most points on a vessel's waterline corresponding to the deepest loading draft.

"Marine Inspector" means any person from the civilian or military branch of the Coast Guard assigned as the Officer in Charge, Marine Inspection or any other person designated by the Coast Guard to perform duties with respect to the inspection, enforcement, and administration of safety and navigation laws and regulations.

"Master" means the senior individual having command of the vessel.

"New vessel" means a sailing vessel which is not an existing vessel.

"Officer in Charge, Marine Inspection (OCMI)" means any person from the civilian or military branch of the Coast Guard designated as such by the Commandant and who, under the authority of the Coast Guard District Commander, is in charge of the inspection zone in which the vessel is located for the performance of duties with respect to the inspections, enforcement, and administration of

vessel safety and navigation laws and regulations.

(n) "Partially Protected Waters" means—

(1) Waters within 37 kilometers (20 nautical miles) of a harbor of safe refuge, unless determined by the OCMI to be exposed waters; and

(2) Those portions of rivers, harbors, lakes, etc. which the OCMI determines not to be sheltered.

(o) "Passenger" means any person carried on board a vessel other than—

(1) The owner or his representative;

(2) The master and bona fide members of the crew who are engaged in the business of the vessel and paid for their services;

(3) Any employee of the owner of the vessel engaged in the business of the owner, except when the vessel is operating under a bareboat charter;

(4) Any employee of the bareboat charterer of the vessel engaged in the business of the bareboat charterer;

(5) Any guest; or

(6) Any sailing school instructor or sailing school student.

(p) "Protected Waters" means sheltered waters presenting no special hazards such as most rivers, harbors, lakes, etc.

(q) "Qualified Organization" means an educational organization, State, or political subdivision of a State that owns or demise charters, and operates a sailing school vessel for the purpose of providing sailing instruction. The educational organization must satisfy the requirements of section 501(c)(3) of the Internal Revenue Code of 1954 and must be exempt from tax under section 501(a) of such Code, as now or hereafter amended.

(r) "Recognized Classification Society" means the American Bureau of Shipping or other classification society recognized by the Commandant.

(s) "Rules of the Road" means the statutory and regulatory rules governing navigation of vessels.

(t) "Sailing Instruction" means teaching, research, and practical experience in operating vessels propelled primarily by sail, and may include—

(1) Any subject related to that operation and the sea, including seamanship, navigation, oceanography, other

§ 169.109

nautical and marine sciences, and maritime history and literature; and

(2) When in conjunction with a subject referred to in paragraph (t)(1) of this paragraph, instruction in mathematics and language arts skills to sailing school student having learning disabilities.

(u) "Sailing School Student" means any person who is aboard a sailing school vessel for the purpose of receiving sailing instruction.

(v) "Sailing School Vessel" means a vessel of less than 500 gross tons, carrying six or more individuals who are sailing school students or sailing school instructors, principally equipped for propulsion by sail even if the vessel has an auxiliary means of propulsion, and owned or demise chartered and operated by a qualified organization during such times as the vessel is operated exclusively for the purposes of sailing instruction.

(w) "Ship's Company" means the officers and crew of a sailing school vessel, sailing school students, and sailing school instructors.

(x) "Watertight" means designed and constructed to withstand a static head of water without any leakage, except that "watertight equipment" means enclosed equipment constructed so that a stream of water from a hose (not less than 1 inch in diameter) under head of about 35 feet from a distance of about 10 feet, and for a period of 5 minutes, can be played on the apparatus without leakage.

(y) "Weathertight" means that water will not penetrate into the unit in any sea condition, except that "weathertight equipment" means equipment constructed or protected so that exposure to a beating rain will not result in the entrance of water.

[CGD 83-005, 51 FR 897, Jan. 9, 1986; 51 FR 3785, Jan. 30, 1986]

§ 169.109 Equivalents.

Substitutes for a fitting, appliance, apparatus, or equipment, may be accepted by the Commandant if the substituted item is as effective and consistent with the requirements and minimum safety standards specified in this subchapter.

46 CFR Ch. I (10-1-90 Edition)

§ 169.111 Administrative procedures.

(a) Upon receipt of a written application for inspection, the Officer in Charge, Marine Inspection assigns a marine inspector to inspect the vessel at a mutually agreed upon time and place.

(b) The owner or a representative shall be present during the inspection.

(c) If during the inspection, the vessel or its equipment is found not to conform to the requirements of law or the regulations in this subchapter, the marine inspector lists all requirements which have not been met and presents the list to the owner or a representative.

(d) In any case where the owner of a vessel or his representative desires further clarification of, or reconsideration of any requirement placed against his vessel, he may discuss the matter with the Officer in Charge, Marine Inspection.

§ 169.112 Special consideration.

In applying the provisions of this part, the Officer in Charge, Marine Inspection, may give special consideration to departures from the specific requirements when special circumstances or arrangements warrant such departures and an equivalent level of safety is provided.

§ 169.113 Right of appeal.

Any person directly affected by a decision or action taken under this part, by or on behalf of the Coast Guard, may appeal therefrom in accordance with subpart 1.03 of this chapter.

[CGD 88-033, 54 FR 50381, Dec. 6, 1989]

§ 169.113 Appeals.

Whenever any person directly interested in or affected by any decision or action of any Officer in Charge, Marine Inspection, feels aggrieved by such decision or action, he may appeal to the Coast Guard District Commander having jurisdiction, and to the Commandant under the provisions of § 2.01-70 of this title.

§ 169.115 Incorporation by reference.

(a) In this subchapter portions or the entire text of certain industrial

standards and specifications are referred to as the governing requirements for materials, equipment, tests, or procedures to be followed. These standards and specification requirements specifically referred to in this subchapter are the governing requirements for the subject matters covered unless specifically limited, modified, or replaced by other regulations in this subchapter.

(b) These materials are incorporated by reference into this part with the approval of the Director of the Federal Register. The Office of the Federal Register publishes a table, "Material Approved for Incorporation by Reference," which appears in the Finding Aids section of this volume. In that table is found citations to the particular sections of this part where the material is incorporated with the approval by the Director of the Federal Register. To enforce any edition other than the one listed in paragraph (c) of this section, notice of change must be published in the FEDERAL REGISTER and the material must be made available. All approved material is on file at the Office of the Federal Register, Washington, DC 20408 and at the U.S. Coast Guard, Merchant Vessel Inspection Division, Washington D.C. 20593.

(c) The materials approved for incorporation by reference in this part are:

- (1) American Boat and Yacht Council (ABYC), P.O. Box 806, 190 Ketchum Ave., Amityville, NY 11701
 - P-1-73—"Safe Installation of Exhaust Systems for Propulsion and Auxiliary Engines" (1973)
 - H-24.9 (g) and (h)—"Fuel Strainers and Fuel Filters" (1975)
 - H-2.5—"Ventilation of Boats Using Gasoline—Design and Construction" (1981)
 - A-1-78—"Marine LPG—Liquefied Petroleum Gas Systems"
 - A-3-70—"Recommended Practices and Standards Covering Galley Stoves"
 - A-22-78—"Marine CNG—Compressed Natural Gas Systems"
- (2) National Bureau of Standards, c/o Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402
 - Special Pub. 440 (SD Cat. No. C13.10:490), "Color: Universal Language and Dictionary of Names", 1976
- (3) National Fire Protection Association (NFPA) Batterymarch Park, Quincy, MA 02269

- 302—"Pleasure and Commercial Motor Craft," Chapter 6 (1980)
- 306—"Control of Gas Hazards on Vessels" (1980)
- 70—"National Electrical Code," Article 310-8 and Table 310-13 (1980)
- (4) Naval Publications and Forms Center, Customer Service Code 1052, 5801 Tabor Ave., Philadelphia, PA 19120
 - Federal Specification ZZ-H-451 "Hose, Fire, Woven-Jacketed Rubber or Cambric-Lined, with Couplings, F."
- (5) Underwriters Laboratories, 333 Pfingsten road, Northbrook, IL 60062
 - UL 19-78—"Woven Jacketed, Rubber Lined Fire Hose"

§ 169.117 OMB control numbers.

(a) *Purpose.* This section collects and displays the control numbers assigned to information collection and record-keeping requirements in this subchapter by the Office of Management and Budget (OMB) pursuant to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). The Coast Guard intends that this section comply with the requirements of 44 U.S.C. 3507(f) which requires that agencies display a current control number assigned by the Director of OMB for each approved agency information collection requirement.

(b) *Display.*

46 CFR Part—	OMB control No.
169.111	2115-0517
169.201	2115-0517
169.205	2115-0007, 2115-0517, 2115-0546
169.211	2115-0517
169.213	2115-0517
169.215	2115-0517
169.217	2115-0517
169.218	2115-0546
169.219	2115-0546
169.233	2115-0554
169.235	2115-0517
169.305	2115-0095
169.509	2115-0132
169.807	2115-0003
169.813	2115-0546
169.841	2115-0546, 2115-0071
169.857	2115-0546

[CGD 83-005, 51 FR 896, Jan. 9, 1986, as amended by CGD 88-072, 53 FR 34298, Sept. 6, 1988]

§ 169.119 Vessel status.

For the purpose of 46 U.S.C. 11101, 46 App. U.S.C. 291 and 46 App. U.S.C. 883 a sailing school vessel is not

§ 169.121

deemed a merchant vessel or a vessel engaged in trade or commerce.

§ 169.121 Loadlines.

Sailing school vessels must meet the applicable loadline regulations contained in Subchapter E (Load Lines) of this chapter.

Subpart 169.200—Inspection and Certification

CERTIFICATE OF INSPECTION

§ 169.201 When required.

(a) No sailing school vessel shall be operated without a valid Certificate of Inspection, Form CG-3753.

(b) Except as noted in this subpart, each sailing school vessel inspected and certificated under the provisions of this subchapter must, during the tenure of the certificate, be in full compliance with the terms of the certificate when carrying six or more individuals who are sailing school students or sailing school instructors.

(c) If necessary to prevent delay of the vessel, a temporary Certificate of Inspection, Form CG-854, is issued pending the issuance and delivery of the regular Certificate of Inspection, Form CG-3753. The temporary certificate is carried in the same manner as the regular certificate and is considered the same as the regular certificate of inspection which it represents.

§ 169.203 Description.

The certificate of inspection issued to a vessel describes the vessel, the route which it may travel, the minimum manning requirements, the major lifesaving equipment carried, the minimum fire extinguishing equipment and life preservers required to be carried, the maximum number of sailing school students and instructors and the maximum number of persons which may be carried, the name of the owner and operator, and such conditions of operations as may be determined by the Officer in Charge, Marine Inspection.

§ 169.205 How to obtain or renew.

(a) A qualified organization attempting to obtain or renew a certificate of inspection for a vessel must submit to

46 CFR Ch. I (10-1-90 Edition)

the Coast Guard Officer in Charge, Marine Inspection located in or nearest the port at which the inspection is to be made, the following—

(1) An application for inspection on Form CG-3752; and

(2) Evidence that the vessel has been designated as a sailing school vessel or an application for designation, as set forth in § 169.218; and

(3) Information concerning the program's age and physical qualifications for students and instructors and the ratio of students to instructors.

(b) The application for initial inspection of a vessel being newly constructed or converted must be submitted prior to the start of such construction or conversion.

(c) The construction, arrangement and equipment of all vessels must be acceptable to the cognizant Officer in Charge, Marine Inspection, as a prerequisite of the issuance of the initial certificate of inspection. Acceptance will be based on the information, specifications, drawings and calculations available to the Officer in Charge, Marine Inspection, and on the successful completion of an initial inspection for certification.

(d) Certificates of inspection will be renewed by the issuance of new certificates of inspection.

(e) The condition of the vessel and its equipment must be acceptable to the cognizant Officer in Charge, Marine Inspection, as a prerequisite of the certificate of inspection renewal. Acceptance will be based on the condition of the vessel as found at the inspection for certification.

§ 169.207 Period of validity.

(a) Certificates of inspection are issued for a period of two years.

(b) Certificates of inspection may be revoked, or suspended and withdrawn by the Officer in Charge, Marine Inspection, at any time for noncompliance with the provisions of this subchapter or requirements established thereunder.

§ 169.209 Routes permitted.

(a) The area of operation for each vessel is designated by the Officer in Charge, Marine Inspection and record-

on its Certificate of Inspection. Each area of operation is described on the Certificate of Inspection under the major headings "exposed waters," "partially protected waters," or "protected waters," as applicable. Further limitations imposed or extensions granted are described by reference to bodies of waters, geographical points, distance from geographical points, distances from land, depths of channel, seasonal limitations, etc.

(b) Operation of vessels on routes of lesser severity than those specifically described or designated on the Certificate of Inspection are permitted, unless expressly prohibited on the Certificate of Inspection. The general order of severity is: exposed, partially protected, and protected waters.

§ 169.211 Permit to proceed for repair.

(a) The Officer in Charge, Marine Inspection, may issue a permit to proceed to another port for repair, Form CG-948, to a vessel if in his judgment it can be done with safety even if the Certificate of Inspection of the vessel has expired or is about to expire.

(b) The permit is issued only upon the written application of the master, owner, or agent of the vessel.

(c) The permit states upon its face the conditions under which it is issued and that guests may not be carried when operating under the permit. The permit must be carried in a manner similar to that described in § 169.217(a) for a certificate of inspection.

§ 169.213 Permit to carry excursion party.

(a) A vessel may be permitted to engage in a temporary excursion operation with a greater number of persons and/or on a more extended route than permitted by its certificate of inspection when in the opinion of the Officer in Charge, Marine Inspection, the operation can be undertaken with safety. A "Permit To Carry Excursion Party" Form CG-949, is a prerequisite of such an operation.

(b) Any Officer in Charge, Marine Inspection, having jurisdiction may issue a permit to carry an excursion party upon the written application of the operator, owner or agent of the vessel.

(c) The OCMI will reevaluate the vessel's sailing instruction program to ensure that the permit fits within the scope of the training program and that the vessel continues to meet the definition of a sailing school vessel.

(d) The OCMI may require an inspection prior to the issuance of a permit to carry an excursion party.

(e) The permit states upon its face the conditions under which it is issued, a reminder about the prohibition against carrying passengers, the number of persons the vessel may carry, the crew required, and additional lifesaving or safety equipment required, the route for which the permit is granted, and the dates on which the permit is valid.

(f) The permit must be carried with the certificate of inspection. Any vessel operating under a permit to carry an excursion party must be in full compliance with the terms of its certificate of inspection as supplemented by the permit.

§ 169.215 Certificate of inspection amendment.

(a) An amended certificate of inspection may be issued at any time by any Officer in Charge, Marine Inspection. The amended certificate of inspection replaces the original. An amended certificate of inspection may be issued to authorize and record a change in the character of a vessel or in its route, equipment, ownership, operator, etc., from that specified in the current certificate of inspection.

(b) A request for an amended certificate of inspection must be made to the Officer in Charge, Marine Inspection, by the master, operator, owner, or agent of the vessel at any time there is a change in the character of a vessel or in its route, equipment, ownership, operation etc., as specified in its current certificate of inspection.

(c) The OCMI may require an inspection prior to the issuance of an amended certificate of inspection.

§ 169.217 Posting.

The certificate of inspection must be framed under glass or other suitable transparent material and posted in a conspicuous place on the vessel except

§ 169.218

on open boats where the certificate may be retained in a watertight container, which is secured to the vessel.

LETTER OF DESIGNATION

§ 169.218 Procedures for designating sailing school vessels.

(a) Upon written request by a qualified institution, a determination is made by the OCMI whether the vessel may be designated as a sailing school vessel.

(b) The request should contain sufficient information to allow the OCMI to make this determination. At a minimum the following items must be submitted:

(1) A detailed description of the vessel, including its identification number, owner, and charterer.

(2) A specific operating plan stating precisely the intended use of the vessel and the intended course of instruction for sailing school students.

(3) A copy of the Internal Revenue Service designation as a non-profit, tax-exempt, organization under sections 501(a) and 501(c)(3) of the Internal Revenue Code.

(4) An affidavit certifying that the owner or charterer has financial resources to meet any liability incurred for death or injury to sailing school students or sailing school instructors on voyages aboard the vessel, in an amount not less than \$50,000 for each student and instructor.

(5) Any additional information as requested by the Officer in Charge, Marine Inspection.

(c) If a designation is granted it is indicated on the certificate of inspection and remains valid for the duration of the certificate, provided all operating conditions remain unchanged.

(d) In the event of a change, the institution must advise the OCMI who issued the designation. After reviewing the pertinent information concerning the change, the OCMI shall determine if the vessel is eligible to retain its designation as a sailing school vessel.

§ 169.219 Renewal of letter of designation.

At least 60 days prior to the expiration date of the certificate of inspection, a request for renewal must be submitted in the same manner as de-

46 CFR Ch. I (10-1-90 Edition)

scribed in § 169.218. If the request for renewal is submitted to the OCMI who made the initial determination and all operating conditions remain unchanged, the information need not be resubmitted.

INSPECTION FOR CERTIFICATION

§ 169.220 General.

(a) An inspection is required before the issuance of a certificate of inspection.

(b) An inspection for certification is not made until after receipt of the information required in § 169.205(a) of this subchapter.

§ 169.221 Initial inspection for certification.

(a) The initial inspection includes an inspection of the hull structure, yards, masts, spars, rigging, sails, machinery, and equipment, including unfired pressure vessels.

(b) The initial inspection of a vessel being newly constructed or converted normally consists of a series of inspections during the construction or conversion.

(c) The inspection ensures that the vessel and its equipment comply with the regulations in this subchapter to the extent they are applicable to the vessel being inspected, and are in accordance with approved plans. The inspection also ensures that the materials, workmanship and condition of all parts of the vessel and its machinery and equipment are in all respects satisfactory for the service intended, and that the vessel is in possession of a valid certificate issued by the Federal Communications Commission, if required.

(d) Before construction is started, the owner, operator, or builder must develop plans indicating the proposed arrangement and construction of the vessel. This list of plans to be developed and the required disposition of these plans are set forth in § 169.305.

§ 169.222 Scope of inspection for certification.

Items normally included in an Inspection for Certification are:

(a) Structure.

- (b) Watertight integrity.
- (c) Pressure vessels and appurtenances.
- (d) Piping.
- (e) Auxiliary machinery.
- (f) Steering apparatus.
- (g) Electrical installations.
- (h) Lifesaving appliances.
- (i) Navigation equipment.
- (j) Fire detecting and extinguishing systems.
- (k) Pollution prevention equipment.
- (l) Sanitary conditions.
- (m) Fire hazards.
- (n) Verification of valid certificates issued by the Federal Communications Commission.
- (o) Lights and signals required by navigation rules.
- (p) Bilge and ballast systems.
- (q) Rigging, yards, masts, spars, and sails.

§ 169.223 Subsequent inspections for certification.

An inspection for renewal of a certificate of inspection includes an inspection of the structure, machinery, yards, spars, masts, rigging, sails, and equipment. The inspection ensures that the vessel is in satisfactory condition, fit for the service intended and complies with the applicable regulations in this subchapter.

REINSPECTION

§ 169.225 When required.

At least one reinspection shall be made on each sailing school vessel holding a valid certificate of inspection. The inspection, when possible, will be made between the tenth and fourteenth month of the period for which the certificate is valid. The owner, operator, or master must contact the OCMi to arrange for this inspection.

§ 169.227 Scope.

The scope of the reinspection is the same as the inspection for certification.

DRYDOCKING OR HAULING OUT

§ 169.229 Drydock examination and internal structural examination intervals.

(a) Except as provided for in paragraphs (b) through (e) of this section, each vessel must undergo drydock and internal structural examinations as follows:

(1) Vessels that operate in salt water must undergo two drydock and two internal structural examinations within any five year period. No more than three years may elapse between any two examinations.

(2) Vessels that operate in fresh water at least six months in every 12 month period since the last drydock examination must undergo drydock and internal structural examinations at intervals not to exceed five years.

(b) Vessels with wooden hulls must undergo two drydock and two internal structural examinations within any five year period regardless of the type of water in which they operate. No more than three years may elapse between any two examinations.

(c) If, during an internal structural examination damage or deterioration to the hull plating or structural members is discovered, the Officer in Charge, Marine Inspection, may require the vessel to be drydocked or otherwise taken out of service to further assess the extent of the damage and to effect permanent repairs.

(d) Each vessel which has not met with the applicable examination schedules in paragraphs (a) through (c) of this section because it is on a voyage, must undergo the required examinations upon completion of the voyage.

(e) The Commandant (G-MVI) may authorize extensions to the examination intervals specified in paragraphs (a) and (b) of this section.

[CGD 84-024, 52 FR 39656, Oct. 23, 1987, as amended at 53 FR 32232, Aug. 24, 1988]

§ 169.231 Definitions relating to hull examinations.

As used in the part—

(a) "Drydock examination" means hauling out a vessel or placing a vessel in a drydock or slipway for an examination of all accessible parts of the

§ 169.233

vessel's underwater body and all through-hull fittings, sea chests, sea valves, sea strainers, and valves for the emergency bilge suction.

(b) "Internal structural examination" means an examination of the vessel while afloat or in drydock and consists of a complete examination of the vessel's main strength members, including the major internal framing, the hull plating, voids, and ballast tanks, but not including cargo or fuel oil tanks.

[CGD 84-024, 52 FR 39656, Oct. 23, 1987, as amended at 53 FR 32232, Aug. 24, 1988]

§ 169.233 Notice and plans required.

(a) The master, owner, operator, or agent of the vessel shall notify the Officer in Charge, Marine Inspection, whenever the vessel is to be drydocked regardless of the reason for drydocking.

(b) Each vessel, except barges, that holds a Load Line Certificate must have on board a plan showing the vessel's scantlings. This plan must be made available to the Coast Guard marine inspector whenever the vessel undergoes a drydock examination or internal structural examination or whenever repairs are made to the vessel's hull.

(c) Each barge that holds a Load Line Certificate must have a plan showing the barge's scantlings. The plan need not be maintained on board the barge but must be made available to the Coast Guard marine inspector whenever the barge undergoes a drydock examination or internal structural examination or whenever repairs are made to the barge's hull.

[CGD 84-024, 52 FR 39656, Oct. 23, 1987]

§ 169.234 Integral fuel oil tank examinations.

(a) Each fuel oil tank with at least one side integral to the vessel's hull and located within the hull ("integral fuel oil tank") is subject to inspection as provided in this section. The owner or operator of the vessel shall have the tanks cleaned out and gas freed as necessary to permit internal examination of the tank or tanks designated by the marine inspector. The owner or operator shall arrange for an examina-

46 CFR Ch. I (10-1-90 Edition)

tion of the fuel tanks of each vessel during an internal structural examination at intervals not to exceed five years.

(b) Integral non-double-bottom fuel oil tanks need not be cleaned out and internally examined if the marine inspector is able to determine by external examination that the general condition of the tanks is satisfactory.

(c) Double-bottom fuel oil tanks on vessels less than 10 years of age need not be cleaned out and internally examined if the marine inspector is able to determine by external examination that the general condition of the tanks is satisfactory.

(d) All double-bottom fuel oil tanks on vessels 10 years of age or older but less than 15 years of age need not be cleaned out and internally examined if the marine inspector is able to determine by internal examination of at least one forward double-bottom fuel oil tank, and by external examination of all other double-bottom fuel oil tanks on the vessel, that the general condition of the tanks is satisfactory.

(e) All double-bottom fuel oil tanks on vessels 15 years of age or older need not be cleaned out and internally examined if the marine inspector is able to determine by internal examination of at least one forward, one amidships, and one aft double-bottom fuel oil tank, and by external examination of all other double-bottom fuel oil tanks on the vessel, that the general condition of the tanks is satisfactory.

[CGD 84-024, 52 FR 39656, Oct. 23, 1987, as amended at 53 FR 32232, Aug. 24, 1988]

REPAIRS AND ALTERATIONS

§ 169.235 Permission required.

(a) Repairs or alterations to the hull, machinery, or equipment which affects the safety of the vessel may not be made without the knowledge and approval of the Officer in Charge, Marine Inspection.

(b) Drawings, sketches or written specifications describing the alterations in detail must be submitted to the OCMI. Proposed alterations must be approved by the Officer in Charge, Marine Inspection, before work is started.

(c) Drawings are not required for repairs or replacements in kind.

§ 169.236 Inspection and testing required.

(a) The provisions of NFPA 306, "Control of Gas Hazards on Vessels," are used as a guide in conducting the inspections and issuing certificates required by this section.

(b) Until an inspection has been made to determine that the operations can be undertaken safely, no alterations, repairs, or other operations involving riveting, welding, burning, or other fire-producing actions may be made—

(1) Within or on the boundaries of fuel tanks; or

(2) To pipelines, heating coils, pumps, fittings, or other appurtenances connected to fuel tanks.

(c) Inspections must be conducted as follows:

(1) In ports or places in the United States or its territories and possessions, the inspection must be made by a marine chemist certificated by the National Fire Protection Association; however, if the services of such certificated marine chemist are not reasonably available, the Officer in Charge, Marine Inspection, upon the recommendation of the vessel owner and his contractor on their representative, may authorize a person to inspect the particular vessel. If the inspection indicates that the operations can be undertaken with safety, a certificate setting forth this fact in writing must be issued by the certificated marine chemist or the authorized person before the work is started. The certificate must include any requirements necessary to reasonably maintain safe conditions in the spaces certified throughout the operation, including any precautions necessary to eliminate or minimize hazards that may be present from protective coatings or residues from cargoes.

(2) When not in a port or place in the United States or its territories and possessions, and when a marine chemist or a person authorized by the Officer in Charge, Marine Inspection, is not reasonably available, the senior officer present shall conduct the inspection and enter the results of the inspection in the vessel's logbook.

(d) It is the responsibility of the senior officer present to secure copies of certificates issued by the certificated marine chemist or a person authorized by the Officer in Charge, Marine Inspection. It is the responsibility of the senior officer present, insofar as the persons under his control are concerned, to maintain a safe condition on the vessel by full observance of all requirements listed by the marine chemist in the certificate.

INSPECTIONS

§ 169.237 Inspection standards.

Vessels are inspected for compliance with the standards required by this subchapter. Items not covered by standards in this subchapter must be in accordance with good marine practice and acceptable to the Officer in Charge, Marine Inspection.

§ 169.239 Hull.

At each inspection for certification, the vessel must be afloat and ready for the following tests and inspections of the hull structure and its appurtenances:

(a) All accessible parts of the exterior and interior of the hull, the watertight bulkheads, and weather deck are examined. Where the internals of the vessel are completely concealed, sections of the lining or ceiling may be removed or the parts otherwise probed or exposed so that the inspector may be satisfied as to the condition of the hull structure.

(b) All watertight closures in the hull, decks and bulkheads are examined and operated.

(c) The condition of the superstructure, masts, and similar arrangements constructed on the hull is checked. All spars, standing rigging, running rigging, blocks, fittings, and sails, including storm sails are inspected.

(d) All railings and bulwarks and their attachment to the hull structure are inspected. Special attention is paid to ensure that guards or rails are provided in all dangerous places.

(e) All weathertight closures above the weather deck are inspected. The provisions for drainage of sea water from the exposed decks are checked.

§ 169.241

46 CFR Ch. I (10-1-90 Edition)

§ 169.241 Machinery.

(a) At each initial and subsequent inspection for certification the Coast Guard examines and tests the following items to the extent necessary to determine that they are in proper operating condition and fit for the service for which they are intended:

(1) *Engine starting system.* Alternate methods of starting are checked.

(2) *Engine control mechanisms.* Mechanisms are operationally tested and visually examined.

(3) *Auxiliary machinery.* All machinery essential to the routine operation of the vessel is checked.

(4) *Fuel systems.* Tanks, tank vents and other appurtenances, piping and pipe fittings are examined. The fuel systems for the auxiliary propulsion engines and all other fuel systems installed are checked. All valves in the fuel lines are tested by operating locally and at remote operating positions.

(5) *Sea valves and bulkhead closure valves.* All overboard discharge and intake valves are checked.

(6) *Bilge and drainage systems.* The means provided for pumping bilges are operationally tested. All suction strainers are examined.

(b) During all inspections special attention is paid to ensure that no fire hazards exist and that guards or protective devices are provided in all hazardous places.

§ 169.243 Electrical.

At each inspection for certification the following items are examined and tested to the extent necessary to determine that they are in proper operating condition, safe electrical condition, and fit for the service for which they are intended:

(a) *Electrical cable.* All cable is examined as far as practicable without undue disturbance of the cable or electrical apparatus.

(b) *Overload or circuit protective devices.* Circuit breakers are tested by manual operation and fuses examined visually. The ratings of fuses are checked to determine suitability for the service intended.

(c) *Rotating machinery.* Rotating electrical machinery essential to the routine operation of the vessel is examined.

(d) *Generators, etc.* All generators, motors, lighting fixtures and circuit interrupting devices located in spaces or areas which may contain flammable vapors are checked.

(e) *Storage batteries.* Batteries are checked for condition and security of stowage.

(f) *Fire detection and alarm system.* Electrical apparatus, which operates as part of or in conjunction with a fire detection or alarm system installed on board the vessel, is operationally tested. The test is applied, in a manner to simulate, as closely as practicable, the actual operation in case of fire.

§ 169.245 Lifesaving equipment.

At each inspection for certification the following tests and inspections of lifesaving equipment are conducted:

(a) All air tank buoyant units of all lifesaving appliances are tested for airtightness.

(b) Each lifeboat is lowered to near the water and loaded with its allowed capacity, evenly distributed throughout the length. The total weight used is at least equal to the allowed capacity of the lifeboat considering persons to weigh 75 kg (165 pounds) each. The lifeboat is then lowered into the water until it is afloat and released from the falls.

(c) Each personal flotation device is examined to determine its serviceability. If found to be satisfactory, it is stamped "Passed," together with the date and the port. If found to be unsatisfactory, the personal flotation device must be removed from the vessel's equipment and repaired. If it is beyond repair it must be destroyed in the presence of the Coast Guard inspector.

(d) Each lifeboat winch electrical control apparatus is opened and inspected.

(e) Where gravity davits are installed, it must be demonstrated that the lifeboat can be swung out and lowered from any stopped position by merely releasing the brake on the lifeboat winch. The use of force to start the davits or the lifeboat winch is not permitted.

(f) Inflatable liferaft containers are examined for defects and the inspection

tor verifies that the inflatable liferafts and hydraulic releases, if installed, have been serviced at an approved facility in accordance with the provisions of Subparts 160.051 and 160.062, respectively, of this chapter.

(g) All other items of lifesaving equipment are examined to determine that they are in suitable condition.

§ 169.247 Firefighting equipment.

(a) At each inspection for certification and at such other times as considered necessary all fire-extinguishing equipment is inspected to ensure it is in suitable condition. Tests may be necessary to determine the condition of the equipment. The inspector verifies that the tests and inspections required in Tables 169.247 (a)(1) and (a)(2) of this subchapter have been conducted by a qualified servicing facility at least once every twelve months.

(1) Hand portable fire extinguishers and semi-portable fire extinguishing systems are examined for excessive corrosion and general condition.

(2) All parts of the fixed fire-extinguishing systems are examined for excessive corrosion and general condition.

(3) Piping, controls, valves, and alarms on all fire-extinguishing systems are checked to be certain the system is in operating condition.

(4) The fire main system is operated and the pressure checked at the most remote and highest outlets.

(5) Each firehose is subjected to a test pressure equivalent to its maximum service pressure.

TABLE 169.247(a)(1)—PORTABLE EXTINGUISHERS

Type unit	Test
Foam.....	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge.
Carbon dioxide.....	Weigh cylinders. Recharge if weight loss exceeds 10 pct of weight of charge. Inspect hose and nozzle to be sure they are clear.

TABLE 169.247(a)(1)—PORTABLE EXTINGUISHERS—Continued

Type unit	Test
Dry chemical (cartridge-operated type).	Examine pressure cartridge and replace if end is punctured or if cartridge is otherwise determined to have leaked or to be in unsuitable condition. Inspect hose and nozzle to see they are clear. Insert charged cartridge. Be sure dry chemical is free-flowing (not caked) and chamber contains full charge.
Dry chemical (stored pressure).	See that pressure gage is in operating range. If not, or if seal is broken, weigh or otherwise determine that full charge of dry chemical is in extinguisher. Recharge if pressure is low or if dry chemical is needed.
HALON 1211 or HALON 1301).	See that pressure gage, if provided, is in operating range. Recharge if pressure is low. Weigh cylinder. Recharge if weight loss exceeds 10 pct of weight of charge. Inspect hose and nozzle to ensure they are clear.

TABLE 169.247(a)(2)—FIXED SYSTEMS

Type system	Test
Carbon dioxide or HALON 1301.	Weigh cylinders. Recharge if weight loss exceeds 10 pct of weight of charge.

§ 169.249 Pressure vessels.

Pressure vessels must meet the requirements of Part 54 of this chapter. The inspection procedures for pressure vessels are contained in Subpart 61.10 of this chapter.

§ 169.251 Steering apparatus.

At each inspection for certification the steering apparatus is inspected and operationally tested to determine that its condition is satisfactory and that it is fit for the service intended.

§ 169.253 Miscellaneous systems and equipment.

(a) At each inspection for certification all items in the ship's outfit, such as ground tackle, navigation lights, compass, etc., which are required to be carried by the regulations in this subchapter are examined and tested as necessary to determine that they are fit the service intended.

§ 169.255

(b) Approved work vests, where carried, are inspected as provided in § 169.556.

§ 169.255 Sanitary inspection.

At each inspection for certification and reinspection quarters, toilet and washing spaces, galleys, serving pantries, lockers, etc., are examined to determine that they are serviceable and in a sanitary condition.

§ 169.257 Unsafe practices.

(a) At each inspection for certification, reinspection, and at every other vessel inspection all observed unsafe practices and hazardous situations must be corrected.

(b) At each inspection for certification and at every other vessel inspection the bilges and other spaces are examined to see that there is no accumulation of oil or other matter which might create a fire hazard.

§ 169.259 Limitations of inspections.

The OCMI may require that a vessel and its equipment meet any test or inspection deemed necessary to determine that they are suitable for the service in which they are to be employed.

Subpart 169.300—Construction and Arrangement

PLANS

§ 169.305 Plans required.

(a) Except as provided in paragraphs (b) and (c) of this section the owner or builder shall, before the start of construction or before the initial inspection of the vessel, submit to the Officer in Charge, Marine Inspection of the inspection zone where the vessel is to be inspected, at least one copy of each of the following plans:

- (1) Midship section.
- (2) Outboard profile.
- (3) Inboard profile.
- (4) Arrangement of decks.
- (5) Lifesaving equipment installation and arrangement.
- (6) Machinery installation.
- (7) Electrical installation.
- (8) Fire control plan.
- (9) Fuel tanks.
- (10) Piping systems.

46 CFR Ch. I (10-1-90 Edition)

(11) Hull penetrations and shell connections.

(12) Lines and offsets, curves of form, and capacities of the tanks including size and location on vessel.

(13) Masts, including integration into the ship's structure.

(14) Rigging plan showing sail areas and centers of effort as well as the arrangement, dimensions, and connections of the standing rigging.

(b) For vessels less than 65 feet in length, the owner may submit specifications, sketches, photographs, line drawings or written descriptions in lieu of any of the required drawings provided the required information is adequately detailed and acceptable to the Officer in Charge, Marine Inspection.

(c) The Officer in Charge, Marine Inspection, may waive submission of some or all of the structural plans called for by paragraph (a) of this section for an existing vessel with a history of at least 5 years of safe operation, or if the design and construction of the vessel are essentially similar to a vessel which has a proven record of safe operation in similar service upon similar waters.

§ 169.307 Plans for sister vessels.

Plans are not required for any vessel which is a sister ship to a vessel, provided that—

(a) The approved plans for the original vessels are already on file at any Marine Inspection Office;

(b) The owner of the plans authorizes their use for the new construction;

(c) The regulations have not changed since the original plan approval; and

(d) There are no major modifications to any of the systems used.

HULL STRUCTURE

§ 169.309 Structural Standards.

(a) Compliance with the standards established by a recognized classification society will, in general, be considered satisfactory evidence of the structural adequacy of a vessel.

(b) Masts, posts and other supporting structures are to have adequate strength to withstand the highest loadings imposed by the sail systems

during all normal and emergency conditions. Particular attention must be given to the integration of the masts and rigging into the hull structure. The hull structure must be adequately reinforced and stiffened locally to ensure sufficient strength and resistance to plate buckling.

(c) The design, materials, and construction of masts, yards, booms, bowsprits, and standing rigging must be suitable for the intended service. Detailed calculations with respect to the strength of the sail system may be required. Approval by a recognized classification society may be considered satisfactory evidence of the adequacy of the sail system.

(d) When scantlings differ from established standards and it can be demonstrated that a craft approximating the same size, power and displacement has been built to the proposed scantlings and has been in satisfactory service, insofar as structural adequacy is concerned, for a period of at least 5 years, the proposed scantling may be approved. A detailed structural analysis may be required.

(e) Special consideration will be given to the structural requirements of vessels not contemplated by the standards of a recognized classification society and to the use of materials not specially included in these standards.

§ 169.311 Fire protection.

(a) The general construction of the vessel must be designed to minimize fire hazards. Each vessel which carries more than 100 persons or has overnight accommodations for more than 49 persons must meet the requirements of Subpart 72.05 of this chapter. Each vessel which is certificated to carry 100 persons or less or had overnight accommodations for less than 50 persons must meet the requirements of § 169.323.

(b) A fire detector, listed by a recognized testing laboratory, must be installed in each unmanned engine space.

(c) Smoke detectors, listed by a recognized testing laboratory, must be installed in each berthing compartment, sail locker, and public area.

(d) Internal combustion engine exhausts, boiler and galley uptakes, and

similar sources of ignition must be kept clear of and suitably insulated from any woodwork or other combustible matter.

(e) Lamp, paint, oil lockers and similar compartments must be constructed of metal or wholly lined with metal.

[CGD 83-005, 51 FR 897, Jan. 9, 1986; 51 FR 3785, Jan. 30, 1986]

§ 169.313 Means of escape.

(a) Except as provided by paragraph (f) of this section, there must be at least two means of escape from all areas generally accessible to persons onboard. At least one means of escape must be independent of watertight doors and lead directly to the open deck. Windows and windshields of sufficient size and proper accessibility may be used as one avenue of escape.

(b) The two means of escape must be as widely separated as practical to minimize the possibility of one incident blocking both escapes.

(c) Except as provided by paragraph (d) of this section, a vertical ladder and deck scuttle may not be designated as one of the means of escape.

(d) A vertical ladder and deck scuttle may be used as a second means of escape if—

(1) The primary means of escape is an enclosed stairtower or stairway;

(2) The installation of two stairways is impracticable;

(3) The scuttle is located where it can not be interfered with; and

(4) The scuttle is fitted with a quick-acting release and a hold-back to hold the scuttle in an open position.

(e) The required means of escape must not have locking devices.

(f) Where the length of the compartment is less than 12 feet, one vertical means of escape is acceptable provided that—

(1) There is no source of fire in the space, such as a galley stove, heater, etc., and the vertical escape is remote from the engine or fuel tank space, and

(2) The arrangement is such that the installation of two means of escape does not materially improve the safety of the vessel or those on board.

§ 169.315

(g) Dead end corridors or the equivalent, more than 40 feet in length are prohibited.

(h) Each means of escape must be of adequate size to accommodate rapid evacuation.

(i) Each vertical ladder must have rungs that are:

- (1) At least 16 inches in length;
- (2) Not more than 12 inches apart, uniform for the length of the ladder;
- (3) At least 3 inches from the nearest permanent object in back of the ladder; and
- (4) Except when unavoidable obstructions are encountered, there must be at least 4½ inches clearance above each rung.

§ 169.315 Ventilation (other than machinery spaces).

(a) All enclosed spaces within the vessel must be properly ventilated in a manner suitable for the purpose of the space.

(b) A means must be provided to close off all vents and ventilators.

(c) Living spaces must be ventilated by a mechanical system unless it can be shown that a natural system will provide adequate ventilation in all ordinary weather conditions. Provided that paragraph (a) of this section is satisfied, a vessel having only a natural ventilation system must satisfy the following: $V/A > 1.4$ where V is the total area of the vents in square inches and A is the product in square feet of the vessel's design waterline length times its maximum beam.

LIVING SPACES

§ 169.317 Accommodations.

(a) Quarters must have sufficient fresh air, light and heat. Quarters must not be located forward of the collision bulkhead or farther forward in the vessel than a vertical plane located at 5 percent of the vessel's loadline length abaft the forward side of the stem. The space must not be located totally below the deepest load waterline.

(b) Bulkheads separating accommodations from machinery spaces, paint lockers, storerooms, washrooms, and toilet facilities are to be odorproof.

46 CFR Ch. I (10-1-90 Edition)

(c) All quarters are to be properly drained, odorproof and protected from heat and noise.

(d) Each person on board must have a separate berth which is of sufficient size and generally clear of all pipes, ventilation ducts and other installations.

(e) Each bunk must be constructed of wood, fiberglass or metal. If fitted with a mattress, the mattress must be covered with material which has been treated to give it fire resistant properties and which will provide the mattress with a reasonably smooth surface. There must be a minimum vertical distance between bunks of 24 inches.

(f) A means of access must be provided for each berthing arrangement where the upper berth is more than 60 inches above the deck.

(g) The construction and arrangement must allow free and unobstructed access to each berth. Each berth must be immediately adjacent to an aisle leading to a means of escape from the living area.

(h) A properly arranged hammock may be used as a berth.

§ 169.319 Washrooms and toilets.

(a) Sailing school vessels must have one toilet and on washbasin for every 20 persons. Each toilet and washbasin must have adequate plumbing.

(b) Each washroom and toilet room must properly drain and the scupper to the washroom must be of sufficient size and situated in the lowest part of the space.

(c) Each sailing school vessel must meet the applicable requirements of Title 33, Code of Federal Regulations, Part 159.

§ 169.321 Motion picture projectors and film.

Motion picture projectors may use only acetate or slowburning films. Nitrocellulose film is prohibited.

§ 169.323 Furniture and furnishings.

Each sailing school vessel certificated to carry 100 persons or less or having overnight accommodations for less than 50 persons must meet the following requirements:

Except as provided by paragraph of this section, all free-standing furniture must be constructed of non-combustible material. Upholstery and padding used in furniture must be of fire-resistant materials.

Existing solid wooden furniture must be retained on existing vessels.

Draperies must be fabricated of fire-resistant fabrics.

Rugs and carpets must be of wool or other material having equivalent fire-resistant qualities.

Trash receptacles must be constructed of non-combustible materials, have solid sides and bottoms and have noncombustible covers.

RAILS AND GUARDS

27 Deck rails.

All rails or lifelines must be at least 30 inches high and permanently supported by stanchions at intervals of not more than 7 feet. Stanchions must be through bolted or welded to the deck.

Rails or lifelines must consist of spaced courses. The spacing between courses must not be greater than 2 inches. The opening below the lower course must not be more than 9 inches. Lower rail courses are not required where all or part of the space between the upper rail is fitted with a wire, chain link fencing, wire mesh or an equivalent.

Small vessels of the open type or vessels of unusual construction must have rails or equivalent protection as considered necessary by the Officer in Charge, Marine Inspection.

29 Storm rails.

Storm rails or hand grabs must be installed where necessary in passageways, at deckhouse sides, at ladders and hatches where personnel must have normal access.

31 Guards in hazardous locations.

Where exposed hazard, such as gears, machinery, must be properly protected with covers, guards, or rails.

Subpart 169.400—Watertight Integrity, Subdivision, and Stability

§ 169.401 Applicability.

Each vessel must meet the applicable requirements in Subchapter S, Parts 170-174, of this chapter.

Subpart 169.500—Lifesaving and Firefighting Equipment

LIFESAVING EQUIPMENT—GENERAL

§ 169.505 Equipment installed but not required.

Each item of lifesaving equipment installed on board a vessel must be of an approved type.

§ 169.507 Responsibility of master.

The master or operator shall ensure that the lifeboats, liferafts, davits, falls, personal flotation devices, and other lifesaving appliances are at all times ready for use, and that all equipment required by the regulations in this subchapter is provided, maintained, serviced, and replaced as indicated.

§ 169.509 Approval for repairs and alterations.

No extensive repairs or alterations, except in an emergency, may be made to any item of lifesaving equipment without advance notice to the Officer in Charge, Marine Inspection. Repairs and alterations must be made to the original standard of construction and tested in the manner specified in this subpart and applicable requirements in Subchapter Q of this chapter. Emergency repairs or alterations must be reported as soon as practicable to the nearest Officer in Charge, Marine Inspection.

PRIMARY LIFESAVING EQUIPMENT

§ 169.513 Types of primary equipment.

(a) *Lifeboats*—Each lifeboat must be of a type approved under Subpart 160.035 of this chapter. Installation and arrangement of each lifeboat including davits and winches must meet the requirements of Part 94 of this chapter.

§ 169.515

(b) *Inflatable Liferrafts.* (1) Each inflatable liferaft must be of a type approved under Subpart 160.051 of this chapter.

(2) The inflatable liferaft and liferaft container must show on or near their respective nameplates, marking approved by the Coast Guard that contains—

(i) An approval number consisting of "160.051/" followed by a number that is greater than 49 followed by a revision number (e.g. 160.051/50/1); or

(ii) An approval number consisting of "160.051/" followed by a number that is smaller than 50 that is followed by a revision number (e.g. 160.051/48/1); the words "MOD TEMP," and the date that an inspector found that the liferaft met § 160.051-5(c)(4) of this chapter.

(3) Each inflatable liferaft must be marked "Ocean Service," except that inflatable liferafts on vessels operating on protected waters or partially protected waters may be marked "Limited Service."

(c) *Life floats.* Each life float must be of a type approved under Subpart 160.027 of this subchapter.

§ 169.515 Number required.

(a) Except as provided in paragraph (c) of this section, each vessel must have sufficient lifeboats or inflatable liferafts to accommodate all persons on board.

(b) Each vessel certificated for exposed waters must have additional inflatable liferafts to accommodate 25% of the persons on board or the number of persons accommodated in the largest lifeboat or liferaft, whichever is greater.

(c) Vessels certificated for protected waters only may carry life floats of a combined capacity to accommodate all persons on board in lieu of the lifeboats and inflatable liferafts required in paragraph (a) of this section.

§ 169.517 Rescue boat.

All vessels certificated for exposed or partially protected waters service must have a suitable motor rescue boat, except when a motor lifeboat is provided or when, in the opinion of the Officer in Charge, Marine Inspection, the vessel is of such design and

46 CFR Ch. I (10-1-90 Edition)

operating characteristics that the vessel itself provides a satisfactory man overboard rescue platform.

§ 169.519 Availability.

(a) Each lifeboat, inflatable liferaft, and life float must be kept in good working order and be readily available.

(b) The decks on which lifeboats, liferafts, and life floats are carried must be kept clear of obstructions which could interfere with the immediate boarding and launching of the lifesaving appliances.

§ 169.521 Stowage.

(a) *General.* Each lifeboat, inflatable liferaft, and life float must be stowed so that—

(1) It is capable of being launched within 10 minutes or, in the case of vessels having one compartment subdivision, 30 minutes;

(2) It does not impede the launching or handling of other lifesaving appliances;

(3) It does not impede the marshaling of persons at the embarkation stations, or their embarkation; and

(4) It is capable of being put in the water safely and rapidly even under unfavorable conditions of list and trim.

(b) *Lifeboat stowage.* Each lifeboat must be stowed to meet the following requirements:

(1) Each lifeboat must be attached to a separate set of davits.

(2) Lifeboats must not be stowed in the bow of the vessel nor so far aft as to be endangered by the propellers or overhang of the stern.

(3) Lifeboats must be stowed so that it is not necessary to lift them in order to swing out the davits.

(4) Means must be provided for bringing the lifeboats against the ship's side and holding them there so that persons may safely embark, unless the lifeboats are arranged for boarding at the stowage position.

(5) Lifeboats must be fitted with skates or other suitable means to facilitate launching against an adverse list of up to 15 degrees. However, skates may be dispensed with if, in the opinion of the Commandant, the arrangements ensure that the lifeboats

can be satisfactorily launched without them.

(6) Means must be provided outside the machinery space to prevent the discharge of water into the lifeboats while they are being lowered.

(c) *Inflatable liferaft stowage.* Inflatable liferafts must be stowed so that they will float free in the event of the vessel sinking. Stowage and launching arrangements must be to the satisfaction of the Officer in Charge, Marine Inspection.

(d) *Life float stowage.* Each life float must be stowed to meet the requirements of this paragraph.

(1) Each life float must be secured to the vessel by a painter and a float-free link that is—

(i) Certified to meet Subpart 160.073 of this chapter;

(ii) Of proper strength for the size of the life float as indicated on its identification tag; and

(iii) Secured to the painter at one end and secured to the vessel on the other end.

(2) The means by which the float-free link is attached to the vessel must—

(i) Have a breaking strength of at least the breaking strength of the painter.

(ii) If synthetic, be of a dark color or of a material certified to be resistant to deterioration from ultraviolet light; and

(iii) If metal, be corrosion resistant.

(3) If the life float does not have a painter attachment fitting, a means for attaching the painter must be provided by a wire or line that—

(i) Encircles the body of the device;

(ii) Will not slip off;

(iii) Has a breaking strength that is at least the breaking strength of the painter; and

(iv) If synthetic, is of a dark color or is of a material certified to be resistant to deterioration from ultraviolet light.

(4) The float-free link described in paragraphs (d)(1) and (d)(2) of this section is not required if the vessel operates solely in waters that have a depth less than the length of the painter.

(5) If the vessel carries more than one life float, the life floats may be

grouped and each group secured by a single painter, provided that—

(i) The combined weight of each group of life floats does not exceed 400 pounds;

(ii) Each life float is individually attached to the painter by a line that meets paragraphs (d)(2) and (d)(3) of this section and which is long enough so that each can float without contacting any other life float in the group; and

(iii) The strength of the float-free link and the strength of the painter under paragraphs (d)(1)(ii) and (d)(2) of this section is determined by the combined capacity of the group of life floats.

(6) Each life float, as stowed, must be capable of easy launching. Life floats weighing over 400 pounds must not require lifting before launching.

(7) Life floats must be secured to the vessel only by a painter and lashings that can be easily released or by hydraulic releases. They must not be stowed in more than four tiers. When stowed in tiers, the separate units must be kept apart by spacers.

(8) There must be means to prevent shifting.

(e) *Hydraulic Releases.* Each hydraulic release used in the installation of any inflatable liferaft or life float must meet Subpart 160.062 of this chapter.

EQUIPMENT FOR PRIMARY LIFESAVING APPARATUS

§ 169.525 General.

(a) Equipment for primary lifesaving apparatus must be kept in good condition.

(b) Lifeboats, inflatable liferafts and lifeboats must be fully equipped before the vessel is navigated and throughout the voyage.

(c) No person may stow in any lifeboat, inflatable liferaft, or lifeboat any article not required by this subpart unless the article is authorized by the OCMI, in good working order, and properly stowed so as not to reduce the seating capacity, the space available to the occupants, or adversely affect the seaworthiness of the lifesaving apparatus.

§ 169.527

(d) Loose equipment, except bathooks in lifeboats, must be securely attached to the lifesaving appliance to which it belongs.

§ 169.527 Required equipment for lifeboats.

Lifeboats must be equipped in accordance with Table 169.527. This equipment is described in § 169.529.

TABLE 169.527

Letter identification and item	Exposed and partially protected waters		Protected waters
	Over—	Not over—	
a—Bailer	1	None	None
b—Bilge pump	1	None	None
c—Boathooks	2	1	1
d—Bucket	2	1	1
e—Compass and mounting	1	None	None
f—Ditty bag	1	None	None
g—Drinking cup	1	None	None
h—Fire extinguisher (motor-propelled lifeboats only)	2	2	2
i—First-aid kit	1	None	None
j—Flashlight	1	None	None
k—Hatchet	2	1	1
l—Heaving line	2	None	None
m—Jackknife	1	None	None
n—Ladder, lifeboat, gunwale	1	None	None
o—Lantern	1	1	1
p—Lifeline	1	1	1
q—Life preservers	2	2	2
r—Locker	1	None	None
s—Mast and sail (oar-propelled lifeboats only)	1	None	None
t—Matches (boxes)	2	1	1
u—Mirror, signaling	2	None	None
v—Oars (units)	1	1	1
w—Oil, illuminating (quarts)	1	None	None
x—Oil, storm, (gallons)	1	None	None
y—Painter	2	1	1
z—Plug	1	1	1
aa—Provisions (per person)	2	None	None
bb—Rowlocks (units)	1	1	1
cc—Rudder and tiller	1	None	None
dd—Sea anchor	1	None	None
ee—Signals, distress, floating orange smoke	2	None	None
ff—Signals, distress, red hand flare (units)	1	None	None
gg—Signals, distress, red parachute flare (units)	1	None	None
hh—Tool kit (motor-propelled lifeboats only)	1	1	1
ii—Water (quarts per person)	3	None	None
jj—Whistle, signaling	1	None	None
kk—Fishing kit	1	None	None
ll—Cover, protecting	1	None	None
mm—Signals, lifesaving	1	None	None

§ 169.529 Description of lifeboat equipment.

(a) *Bailer*. The bailer must have a lanyard attached and must be of sufficient size and suitable for bailing.

46 CFR Ch. I (10-1-90 Edition)

(b) *Bilge pump*. Bilge pumps must be approved under Subpart 160.044 of this chapter. They must be of the size given in Table 169.529(b) depending upon the capacity of the lifeboat as determined by the six-tenths rule as described in § 160.035-9(b) of this chapter.

TABLE 169.529(b)

Capacity of lifeboat, cubic feet		Bilge pump size
Over—	Not over—	
330	330	1
700	700	2
		3

(c) *Boathooks*. Boathooks must be of the single hook ballpoint type. Boathook handles must be of clear grained white ash, or equivalent, and of a length and diameter as given in Table 169.529(c).

TABLE 169.529(c)

Length of lifeboat, feet		Boathook handles	
Over—	Not over—	Diameter, inches	Length, feet
23	23	1.50	8
29	29	1.75	10
		2	12

(d) *Bucket*. Each bucket must be of heavy gage galvanized iron, or other suitable corrosion-resistant metal, of not less than 2-gallon capacity, and must have a 6-foot lanyard of 12-thread manila or equivalent attached.

(e) *Compass and mounting*. The compass and mounting must be of an approved type.

(f) *Ditty bag*. The ditty bag must consist of a canvas bag or equivalent and must contain a sailmaker's palm, needles, sail twine, marline, and marline spike.

(g) *Drinking cups*. Drinking cups must be enamel coated or plastic, graduated in milliliters or ounces, and provided with lanyards 3 feet in length.

(h) *Fire extinguishers*. Each fire extinguisher must be an approved Type B-C, Size I. One must be attached to each end of the lifeboat.

(i) *First-aid kit.* The first-aid kit must be approved under Subpart 160.041 of this chapter.

(j) *Flashlights.* Each flashlight must be approved under Subpart 161.008 of this chapter. Three spare cells (or one 3-cell battery) and two spare bulbs, stowed in a watertight container, must be provided with each flashlight. Batteries must be replaced yearly during the annual stripping, clearing, and overhaul of the lifeboat.

(k) *Hatchets.* Hatchets must be approved under Subpart 160.013 of this chapter. They must be attached to the lifeboat by individual lanyards and be readily available for use, one at each end of the lifeboat.

(l) *Heaving line.* The heaving line must be of adequate strength, 10 fathoms in length, and 1 inch in circumference. It must remain buoyant after being submerged for 24 hours.

(m) *Jackknife.* The jackknife must be approved under Subpart 160.043 of this chapter.

(n) *Ladder, lifeboat gunwale.* The lifeboat gunwale ladder must consist of 3 flat wood steps with cut outs for hand holds. The steps must be spaced 12 inches apart and fastened with $\frac{1}{2}$ inch diameter manila rope or equivalent. Each rope end must be tied inside the lifeboat at about amidships with the ladder stowed on top of the side benches and ready for immediate use.

(o) *Lantern.* The lantern must contain sufficient oil to burn for at least 9

hours, and be ready for immediate use. In totally enclosed lifeboats, an interior lighting system may be used in lieu of a lantern.

(p) *Lifeline.* The lifeline must be properly secured to both sides of the lifeboat along its entire length, fastened in bights not longer than 3 feet, with a seine float in each bight. The float may be omitted if the line is of an inherently buoyant material and absorbs little or no water. The lifeline must be of a size and strength not less than $\frac{3}{8}$ -inch diameter manila. The bights must hang to within 12 inches of the water when the lifeboat is light.

(q) *Life preservers.* Life preservers must be of an approved type. These preservers are in addition to those required by § 169.539 of this chapter.

(r) *Locker.* The locker must be suitable for the storage and preservation of the small items of equipment required under § 169.527.

(s) *Mast and sail.* A unit, consisting of a standing lug sail together with the necessary spars and rigging, must be provided in accordance with Table 169.529(s). The sails must be of good quality canvas, or other material acceptable to the Commandant, colored Indian Orange (Cable No. 70072, Standard Color Card of America). Rigging must consist of galvanized wire rope not less than three-sixteenths inch in diameter. The mast and sail must be protected by a suitable cover.

TABLE 169.529(b)

Length of lifeboat, feet		Standing lug sail										Com- mercial designa- tion number	Mast ¹		Yard ¹		Diam- eter, inches
Over—	Not over—	Area, square feet	Luff and head lengths		Leach length		Foot length		Clew to throat		Length		Diam- eter, inches	Feet	Inches		
			Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet					Inches	
17	17	58	5	11	12	1	8	10	10	10	14.35	10	11	2	6	11	2
17	19	74	6	8	13	8	10	0	12	2	14.35	10	12	6	7	8	2
19	21	93	7	5	15	1	11	2	13	6	14.35	10	13	10	8	5	2½
21	23	113	8	3	16	11	12	4	15	1	14.35	10	15	2	9	3	2½
23	25	135	9	0	16	6	13	6	16	6	14.35	10	16	6	10	0	3
25	27	156	9	9	20	0	14	7	17	10	17.50	8	17	10	10	9	3
27	29	181	10	5	21	5	15	7	19	1	17.50	8	19	2	11	5	3½
29	31	203	11	0	22	8	16	6	20	3	20.74	6	20	6	12	0	3½
31 *																	

¹Mast lengths measured from heel to center of upper halyard sheave. Mast diameters measured at throat. Mast and yard shall be of clear-grained spruce, fir, or equivalent.

²Subject to special consideration.

- (t) *Matches.* A box of friction matches in a watertight container, stowed in an equipment locker or secured to the underside of the stern thwart if no locker is fitted, must be provided.
- (u) *Mirrors, signaling.* Signaling mirrors must be of an approved type.
- (v) *Oars.* A unit, consisting of a complement of rowing oars and steering oar, must be provided for each lifeboat in accordance with Table 169.529(v) except that motor-propelled and hand-propelled lifeboats need only be equipped with four rowing oars and one steering oar. In any case, the emergency lifeboats must be provided with the full complement of oars prescribed by the table. All oars must be buoyant.
- (w) *Oil, illuminating.* One quart of illuminating oil must be provided in a metal container if a lantern is carried.
- (x) *Oil, storm.* One gallon of vegetable, fish, or animal oil must be provided in a suitable metal container so constructed as to permit a controlled distribution of oil on the water, and so arranged that it can be attached to the sea anchor.
- (y) *Painter.* Painters must be of manila rope not less than 2 1/4 inches in circumference, or equivalent, and of a length not less than 3 times the distance between the deck on which the lifeboat is stowed and the light draft of the vessel. For lifeboats on vessels certificated for exposed or partially protected water service, one of the painters must have a long eye splice and be attached to the thwart with a toggle. The other painter must be attached to the stem.
- (z) *Plug.* The automatic drain required in the lifeboat must be provided

- ed with a cap or plug attached to the lifeboat by a suitable chain.
- (aa) *Provisions.* Approved emergency rations must be provided, consisting of 10,000 kJ (2390 calories) for each person the lifeboat is approved to carry. The provisions must be stowed in lockers or other compartments providing suitable protection.
- (bb) *Rowlocks.* A unit, consisting of sufficient rowlocks and rowlock sockets for each oar required by Table 169.529(w) plus 2 additional rowlocks must be provided. The rowlocks must be attached to the lifeboat by separate chains so as to be available for immediate use, except that the 2 additional spare rowlocks must be carried in the equipment locker or stowed near the stern if no locker is fitted. The rowlocks and rowlock sockets must be distributed so as to provide the maximum amount of single banked oars practicable.
- (cc) *Rudder and tiller.* The rudder and tiller must be constructed in accordance with § 160.035-3(t) of this chapter.
- (dd) *Sea anchor.* The sea anchor must be of an approved type.
- (ee) *Signals, distress, floating orange smoke.* The floating orange smoke distress signals must be approved under subpart 160.022 of this chapter. The signals must be replaced no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.
- (ff) *Signals, distress, red hand flare.* A unit consists of twelve hand red flare distress signals approved under Subpart 160.021 or 160.023 of this chapter and stored in a watertight container. Signals must be replaced no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.
- (gg) *Signals, distress, red parachute flare.* A unit consists of twelve parachute red flare distress signals with an approved means of projection approved under Subparts 160.024 and 160.028 respectively; or twelve approved hand-held rocket-propelled parachute red flare distress signals approved under Subpart 160.036. Flares must be stored in a portable watertight container. Flares must be replaced no later than the first annual

TABLE 169.529(v)

Length of lifeboat (feet)		Number of oars—		Length of oars (feet)—	
Over—	Not over—	Rowing	Steering	Rowing	Steering
15	15	4	1	8	9
15	19	6	1	10	11
19	21	6	1	11	12
21	23	6	1	12	13
23	25	8	1	13	14
25	27	8	1	14	15
27		8	1	15	16

§ 169.531

stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

(hh) *Tool kit.* The tool kit must consist of at least the following tools in a suitable container:

- (1) One 12-ounce ball peen hammer.
- (2) One screwdriver with 6-inch blade.
- (3) One pair 8-inch slip joint pliers.
- (4) One 8-inch adjustable end wrench.

(ii) *Water.* (1) For each person the lifeboat is certified to carry, there must be provided three quarts of drinking water in containers approved under Subpart 160.026. Water must be replaced no later than the first annual stripping, cleaning, and overhaul of the lifeboat after date of expiration.

(2) One or more desalting kits, approved under Subpart 160.058 of this chapter, may be used as a substitute for one-third of the drinking water required.

(3) The drinking water must be stowed in drinking water tanks, lockers, or other compartments providing suitable protection.

(jj) *Whistle, signaling.* The whistle must be of the ball-type or multi-tone type, of corrosion resistant construction, with a 36-inch lanyard attached, and in good working order.

(kk) *Fishing kit.* The fishing kit must be approved under Subpart 160.061 of this chapter.

(ll) *Cover, protecting.* The cover must be of highly visible color and capable of protecting the occupants against exposure.

(mm) *Table of lifesaving signals.* The table of lifesaving signals must be in accordance with the provisions of Chapter V, Regulation 16, of the International Convention for Safety of Life at Sea, 1974, and must be printed on water resistant paper.

§ 169.531 Required equipment for liferafts.

Each liferaft must be fitted with the equipment required by and described in § 160.051-7(c) of Subchapter Q (Specifications) of this chapter.

46 CFR Ch. I (10-1-90 Edition)

§ 169.535 Required equipment for lifeboats.

Each lifeboat must be equipped in accordance with Table 169.535. The equipment is described in § 169.537.

TABLE 169.535

Letter identification and Item	Number required for each lifeboat	
	Exposed and partially protected water	Protected water
(a) Boathook.....	1	1
(b) Lifeline.....	1	1
(c) Paddles.....	4	4
(d) Painter.....	1	1
(e) Water light.....	1	None

§ 169.537 Description of equipment for lifeboats.

(a) *Boathook.* Each boathook must be of the single hook ball point type. Boathook handles must be of clear grained white ash, or equivalent, not less than 6 feet long and 1½ inches diameter.

(b) *Lifeline and pendants.* The lifeline and pendants must be as furnished by the manufacturer with approved life floats. Replacement lifelines and pendants must meet the requirements in Subpart 160.010 of this chapter.

(c) *Paddles.* Paddles must be not less than 5 feet long.

(d) *Painter.* The painter must—
(1) Be at least 30m (100 ft.) long, but not less than 3 times the distance between the deck on which the life float(s) are stowed and the light dra of the vessel,

(2) Have a breaking strength of at least 6.7 KN (1500 lbs.), except that if the capacity of the life float is 50 persons or more, the breaking strength must be at least 13.4 KN (3000 lbs.).

(3) Be of a dark color, if synthetic, of a type certified to be resistant to deterioration from ultraviolet light, and

(4) Be stowed in such a way it runs freely when the life float floats away from the sinking vessel.

(e) *Water light.* The water light must be approved under subpart 161.010 of this chapter. The water light must be attached to the lifeboat by a lifeline.

thread manila or equivalent synthetic lanyard 3 fathoms in length.

PERSONAL FLotation DEVICES

§ 169.539 Type required.

All personal flotation devices (PFDs) must be either—

(a) a Type I approved under Subpart 160.055, 160.002, or 160.005 of Subchapter Q (specification) of this chapter; or

(b) a Type V approved specifically for sailing school vessel use under Subpart 160.064 or 160.077 of Subchapter Q of this chapter; or

(c) a Type II approved under Subparts 160.047, 160.052, or 160.060 or a Type III approved under Subpart 160.064 if the vessel carries exposure suits or Type V exposure PFDs, in accordance with section 169.551.

§ 169.541 Number required.

Each vessel must be provided with an approved adult personal flotation device of an appropriate size for each person carried. In addition, unless the service is such that children are never carried, there must be provided an approved personal flotation device of a suitable size for each child carried.

§ 169.543 Distribution and stowage.

(a) Personal flotation devices must be distributed through the upper part of the vessel in protected places convenient to the persons on board.

(b) If practicable, personal flotation device containers must be designed to allow the PFDs to float free.

(c) Personal flotation devices for children, when provided, must be stowed separately.

(d) Lockers, boxes, and closets in which PFDs are stowed must not be capable of being locked.

§ 169.545 Markings.

(a) Each personal flotation device must be marked with the vessel's name.

(b) Where PFDs are stowed so that they are not readily visible to persons onboard, the containers in which they are stowed must be marked "adult personal flotation devices" or "child personal flotation devices", as appropriate, and with the number contained

therein, in at least 1-inch letters and figures.

(c) Each personal flotation device carried on vessels certificated for exposed or partially protected waters service must have a light approved under Subpart 161.012 of this chapter. The light must be securely attached to the front shoulder area of the personal flotation device.

(d) Each personal flotation device must have at least 200 sq. cm. (31 sq. in.) of retroreflective material attached on its front side and at least 200 sq. cm. on its back side. If the personal flotation device is reversible, retroreflective material must be applied as described above on both sides.

(e) Retroreflective material required by this section must be Type I material that is approved under Subpart 164.018 of this chapter.

ADDITIONAL LIFESAVING EQUIPMENT

§ 169.549 Ring lifebuoys and water lights.

(a)(1) The minimum number of life buoys and the minimum number to which water lights must be attached must be in accordance with the following table:

TABLE 169.549(a)(1)

Length of vessel	Minimum number of buoys	Minimum number of buoys with waterlights attached
Under 100	2	1
100 feet to less than 200 ft.	4	2
200 feet to less than 300 ft.	6	2
300 feet to less than 400 ft.	12	4
400 feet to less than 600 ft.	18	9

(2) One lifebuoy on each side of a vessel must have an attached line at least 15 fathoms in length.

(b) All lifebuoys must be placed where they are readily accessible. They must be capable of being readily cast loose.

(c)(1) All ring lifebuoys must be approved under Subpart 160.050 or 160.064 of this chapter and be international orange in color.

(2) Each water light must be approved under Subpart 161.010 of this chapter.

§ 169.551

§ 169.551 Exposure suits.

(a) This section applies to each vessel operating in exposed or partially protected waters service except those—

(1) Operating on routes between 32°N and 32°S in the Atlantic Ocean.

(2) Operating on routes between 35°N and 35°S latitude in all other waters.

(b) Each vessel to which this section applies must have for each person on board an exposure suit approved under Subpart 160.071 or a Type V exposure PFD approved under Subpart 160.053.

§ 169.553 Pyrotechnic distress signals.

(a) All pyrotechnic distress signals must be of an approved type.

(b) Replacement must be made no later than the first inspection for certification or reinspection after the date of expiration.

(c) Except as otherwise provided in this section, each vessel must carry the following pyrotechnic distress signals:

(1) 6 hand red flare distress signals, and 6 hand orange smoke distress signals; or,

(2) 12 hand held rocket propelled parachute red flare distress signals.

(d) [Reserved]

(e) All pyrotechnic distress signals must be carried near the helm or in a location considered suitable by the Officer in Charge, Marine Inspection.

(f) All pyrotechnic distress signals must be stowed in a portable watertight container.

§ 169.555 Emergency position indicating radio beacon (EPIRB).

(a) Each vessel certificated for exposed waters must have an approved Class A emergency position indicating radiobeacon (EPIRB), and each vessel certificated for partially protected waters must have an approved Class C emergency position indicating radiobeacon (EPIRB). The required EPIRB must be—

(1) Operational;

(2) Stowed where it is readily accessible for testing and use; and

(3) Stowed in a manner so that it will float free if the vessel sinks.

46 CFR Ch. I (10-1-90 Edition)

(b) Each vessel must have an additional Class B EPIRB for every twenty-five persons onboard, for use in the lifeboats and liferafts.

[CGD 83-005, 51 FR 896, Jan. 9, 1986; 51 FR 10432, Mar. 28, 1986]

§ 169.556 Work vests.

(a) Buoyant work vests carried under the permissive authority of this section must be approved under Subpart 160.053 of this chapter.

(b) Approved buoyant work vests are items of safety apparel and may be carried aboard vessels to be worn by persons when working near or over the water under favorable working conditions. Work vests are not accepted in lieu of any of the required number of approved personal flotation devices and must not be worn during drills and emergencies.

(c) The approved buoyant work vests must be stowed separately from personal flotation devices, and in locations where they will not be confused with personal flotation devices.

(d) Each work vest is subject to examination by a marine inspector to determine its serviceability. If a work vest is found not to be in a serviceable condition, then it must be repaired or removed from the vessel. If a work vest is beyond repair, it must be destroyed in the presence of the marine inspector.

FIREFIGHTING EQUIPMENT

§ 169.559 Fire pumps.

(a) Each sailing school vessel must be equipped with fire pumps as required in Table 169.559(a).

TABLE 169.559(a)—Fire Pumps

Length	Exposed and partially protected water service	Protected water service
65 feet but less than 90 feet.....	1 1	0
90 feet but less than 120 feet.....	2 1	1 1
120 feet or greater	2 2	1 1

¹ May be driven off a propulsion engine and may be used as a bilge pump.

² Must be driven by a source of power independent of the propulsion engine and may be used as a bilge pump.

³ One pump may be driven off a propulsion unit and one pump may be used as a bilge pump. Pumps must be located in separate spaces.

(b) Fire pump capacity must be in accordance with the following:

Vessel length	Minimum capacity
Less than 90 ft.....	5.5 m ³ /hr (25 gpm).
90 feet but less than 120 ft.....	11.0 m ³ /hr (50 gpm).
Greater than 120 ft.....	14.3 m ³ /hr (66.8 gpm).

(c) Each fire pump must be fitted with a pressure gage on the discharge side of the pump.

(d) Each vessel must have a hand operated portable fire pump having a capacity of at least 1.1 m³/hr (5 gpm). This pump must be equipped with suction and discharge hose suitable for use in firefighting.

§ 169.561 Firemain.

(a) Each vessel required to be provided with a power-driven fire pump must also be provided with a fire main, hydrants, hoses and nozzles.

(b) Fire hydrants must be of sufficient number and located so that any part of the vessel may be reached with an effective stream of water from a single length of hose.

(c) All piping, valves, and fittings must be in accordance with good marine practice and suitable for the purpose intended.

§ 169.563 Firehose.

(a) One length of firehose must be provided for each fire hydrant required.

(b) Vessels less than 90 feet in length must have commercial firehose or equivalent of not over 1½ inch diameter or garden hose of not less than ¾ inch nominal inside diameter. If garden hose is used, it must be of a good commercial grade constructed of an inner rubber tube, plies of braided cotton reinforcement and an outer rubber cover, or of equivalent material and must be fitted with a commercial garden hose nozzle of good grade bronze or equivalent metal.

(c) Vessels of 90 feet or greater must have lined commercial firehose that conform to Underwriters' Laboratories, Inc. Standard 19 or Federal Specification ZZ-H-451. The firehose must be fitted with a combination nozzle approved under § 162.027 of this chapter.

(d) Each length of firehose must be a single piece 50 feet long.

(e) Firehose must be connected to the hydrants at all times, except that, on open decks where no protection is afforded to the hose, it may be temporarily removed from the hydrant in heavy weather and stowed in an accessible nearby location.

§ 169.564 Fixed extinguishing system, general.

(a) Fixed carbon dioxide or halogenated extinguishing systems must be installed to protect the following spaces—

(1) The machinery and fuel tank spaces of all vessels, except where machinery and fuel tank spaces are so open to the atmosphere as to make the use of a fixed system ineffective;

(2) The paint and oil rooms and similar hazardous spaces; and

(3) The galley stove area, for vessels greater than 90 feet in length and certificated for exposed or partially protected water service.

(b) Each fixed extinguishing system must be of an approved carbon dioxide or halogenated type and installed to the satisfaction of the Officer in Charge, Marine Inspection.

§ 169.565 Fixed carbon dioxide system.

(a) The number of pounds of carbon dioxide required for each space protected must be equal to the gross volume of the space divided by the appropriate factor in Table 169.565(a).

TABLE 169.565(a)

Gross volume of compartment, cubic feet		Factor
Over—	Not over—	
0.....	500	15
500.....	1,600	16
1,600.....	4,500	18
4,500.....		20

(b) A separate supply of carbon dioxide is not required for each space protected. The total available supply must be sufficient for the space requiring the greatest amount.

(c) *Controls.* (1) Each control and valve for the operation of the system must be outside the spaces protected and accessible at all times.

(2) Each branch line must be fitted with an approved shutoff valve. Each valve must be kept closed at all times except to operate the particular system.

(3) The arrangements must be such that the entire charge to any space can be introduced into the space by the operation of one valve selecting the space, and one control for releasing the required amount of fire extinguishing agent. The release control must be of an approved type and located adjacent to the branch line shutoff valve.

(4) Complete but simple instructions for the operation of the system must be located in a conspicuous place at or near the releasing control device.

(5) Each control valve to branch lines must be labeled to indicate the space served.

(d) *Piping.* (1) The pipe and fittings for the extinguishing systems must be in accordance with the system manufacturer's approved design manual.

(2) Each pipe, valve, and fitting of ferrous materials must be galvanized.

(3) Each dead-end line must extend at least 2 inches beyond the last orifice and must be closed with cap or plug.

(4) Each pipe, valve, and fitting must be securely supported and, where necessary, protected against injury.

(5) Drains and dirt traps must be fitted where necessary to prevent accumulation of dirt or moisture. Each drain and dirt trap must be located in accessible locations but not in accommodation spaces.

(e) *Discharge outlets.* (1) The area of discharge outlets shall be as specified in the manufacturer's approved design manual.

(2) The discharge of the required amount of carbon dioxide must be complete within two minutes.

(f) *Cylinders.* (1) Each cylinder must be securely fastened and supported and where necessary protected against injury. Cylinders must be located outside the space protected.

(2) Each cylinder must be mounted in an upright position or inclined not more than 30° from the vertical, except that cylinders which are fitted with flexible or bent siphon tubes may be inclined not more than 80° from the vertical.

(3) Each cylinder used for storing extinguishing agent must be approved and marked in accordance with Department of Transportation regulations.

(4) Each cylinder must be mounted so it is readily accessible and capable of easy removal for recharging and inspection. Cylinders must be capable of being weighed in place.

(5) Where subject to moisture, cylinders must be installed so that a space of at least 2 inches is provided between the flooring and the bottom of the cylinders.

(6) Each cylinder storage area must be properly ventilated and the temperature inside must not exceed 130 °F.

(g) Provision must be made by means of plugs, covers, dampers, etc. to prevent the admission of air into the space protected.

(h) Systems must be fitted with a delayed discharge and an alarm bell arranged so the alarm sounds for at least twenty seconds before the carbon dioxide is released into the space.

§ 169.567 Portable extinguishers.

(a) The minimum number of portable fire extinguishers required on each vessel is determined by the Officer in Charge, Marine Inspection, in accordance with Table 169.567(a) and other provisions of this subpart.

TABLE 169.567(A)

Space protected	Total number extinguishers required	Type extinguishers permitted		Coast Guard classification
		Medium	Minimum size	
Living space and open boats.	1 per 1000 cu. ft. of space.	Halon 1211 of 1301.....	2½ pounds.....	B-I.
		Foam.....	1½ gallons.....	
		Carbon dioxide.....	4 pounds.....	
		Dry chemical.....	2 pounds.....	

TABLE 169.567(A)—Continued

Space protected	Total number extinguishers required	Type extinguishers permitted		Coast Guard classification
		Medium	Minimum size	
Propulsion machinery space with fixed CO ₂ or halon system.	1	Foam	1 1/4 gallons	B-II.
	Carbon dioxide			
	4 pounds			
	B-I			
Propulsion machinery space without fixed CO ₂ or halon system.	2	Dry chemical	2 pounds	
		Halon 1211 or 1301	2 1/4 pounds	
		Foam	2 1/4 gallons	
	Carbon dioxide			
	15 pounds			
	B-II			
Galley (without fixed system).	1 per 500 cu. ft.	Dry chemical	10 pounds	B-II.
		Halon 1211 or 1301	10 pounds	
		Foam	2 1/4 gallons	
		Carbon dioxide	15 pounds	
		Dry chemical	10 pounds	
		Halon 1211 or 1301	10 pounds	

(b) The Officer in Charge, Marine Inspection, may permit the use of any approved fire extinguishers, including semiportable extinguishers, which provide equivalent fire protection.

(c) All portable fire extinguishers installed on vessels must be of an approved type.

(d) Portable fire extinguishers must be stowed in a location convenient to the space protected.

(e) Portable fire extinguishers must be installed and located to the satisfaction of the Officer in Charge, Marine Inspection.

(f) Portable fire extinguishers which are required to be protected from freezing must not be located where freezing temperatures may be expected.

(g) Each vessel must carry spare charges for at least 50 percent of each size and variety of hand portable extinguishers required. For units that can not be readily recharged on the vessel, one spare extinguisher for each classification carried onboard must be provided in lieu of spare charges.

[CGD 83-005, 51 FR 897, Jan. 9, 1986; 51 FR 3785, Jan. 30, 1986]

§ 169.569 Fire axes.

(a) Each vessel must carry at least the number of fire axes set forth in Table 169.569(a). The Officer in Charge, Marine Inspection may require additional fire axes necessary for the proper protection of the vessel.

TABLE 169.569(a)

Length		Number of axes
Over	Not over	
	65	0
65	90	1
90	120	2
120	150	3
150		4

(b) Fire axes must be stowed so as to be readily available in the event of emergency.

(c) If fire axes are not located in the open or behind glass, they must be placed in marked enclosures containing the fire hose.

Subpart 169.600 Machinery and Electrical

§ 169.601 General.

(a) The regulations in this subpart contain requirements for the design,

§ 169.605

construction and installation of machinery on sailing school vessels.

(b) Machinery must be suitable in type and design for the purpose intended. Installations of an unusual type and those not addressed by this subpart are subject to the applicable regulations in Subchapter F (Marine Engineering) and Subchapter J (Electrical Engineering) of this chapter.

(c) The use of liquefied inflammable gases, such as propane, methane, butane, etc., as fuel, except for cooking purposes, is prohibited.

INTERNAL COMBUSTION ENGINE INSTALLATIONS

§ 169.605 General.

(a) Generators, starting motors, and other spark producing devices must be mounted as high above the bilges as practicable.

(b) Gages to indicate engine cooling water temperature, exhaust cooling water temperature and engine lubricating oil pressure must be provided and located in plain view.

(c) All electrical components of the engine must be protected in accordance with § 183.410 of Title 33, Code of Federal Regulations to prevent ignition of flammable vapors.

§ 169.607 Keel cooler installations.

(a) Except as provided in this section, keel cooler installations must meet the requirements of § 56.50-96 of this chapter.

(b) Approved metallic flexible connections may be located below the deepest load waterline if the system is a closed loop below the waterline and its vent is located above the waterline.

(c) Fillet welds may be used in the attachment of channels and half round pipe sections to the bottom of the vessel.

(d) Short lengths of approved non-metallic flexible hose may be used at machinery connections fixed by hose clamps provided that—

(1) The clamps are of a corrosion resistant material;

(2) The clamps do not depend on spring tension for their holding power; and

(3) Two clamps are used on each end of the hose or one hose clamp is used

46 CFR Ch. I (10-1-90 Edition)

and the pipe ends are expanded or beaded to provide a positive stop against hose slippage.

§ 169.608 Grid cooler installations

(a) Hull penetrations for grid cooler installations must be made through a cofferdam or at a sea chest.

(b) Grid coolers must be suitably protected against damage from debris and grounding by recessing the unit into the hull or by the placement of protective guards.

(c) Each grid cooler hull penetration must be equipped with a shutoff valve.

§ 169.609 Exhaust systems.

Engine exhaust installations and associated cooling systems must be built in accordance with the requirements of American Boat and Yacht Council, Inc. Standard P-1, "Safe Installation of Exhaust Systems for Propulsion and Auxiliary Machinery" and the following additional requirements:

(a) All exhaust installations with pressures in excess of 15 pounds per square inch gage or employing runs passing through living or working spaces must meet the material specifications of Part 56 of Title 46, Code of Federal Regulations.

(b) Horizontal dry exhaust pipes are permitted if they do not pass through living or berthing spaces, terminate above the deepest load waterline, are arranged to prevent entry of cold water from rough seas, and are constructed of corrosion resistant material at the hull penetration.

(c) When the exhaust cooling system is separate from the engine cooling system, a suitable warning device must be provided to indicate a failure of water flow in the exhaust cooling system.

§ 169.611 Carburetors.

(a) This section applies to all vessels having gasoline engines.

(b) Each carburetor other than a down-draft type, must be equipped with integral or externally fitted drip collectors of adequate capacity and arranged so as to permit ready removal of fuel leakage. Externally fitted drip collectors must be covered with flame screens.

(c) Each gasoline engine must be equipped with an approved means of backfire flame control. Installations of backfire flame arresters or engine air and fuel induction systems bearing basic Approval No. 162.015 may be continued in use as long as they are serviceable and in good condition. New installations or replacements must meet one of the following requirements:

(1) The backfire flame arrester must be approved under Subpart 162.041 of this chapter. The flame arrester must be secured to the air intake with a flange-tight connection.

(2) The engine air and fuel induction system must provide adequate protection from propagation of backfire flame to the atmosphere equivalent to that provided by an approved backfire flame arrester. A gasoline engine utilizing an air and fuel induction system, and operated without an approved backfire flame arrester, must have the installation approved, tested and labelled in accordance with Subpart 162.042 of this chapter.

(3) The carburetor or the engine air induction system must have an attachment which disperses engine backfire flames to the atmosphere outside the vessel in such a manner that the flames will not endanger the vessel, persons on board, or nearby vessels and structures. Each attachment must be of metallic construction with flame-tight connections and firmly secured to withstand vibration, shock, and engine backfire. These installations do not require formal approval and labeling, but must be accepted by the OCMI.

(d) Where manufacturers wish to produce vessels having an integrated engine-vessel design, the installation must be approved under Subpart 162.043 of this chapter.

FUEL SYSTEMS

§ 169.613 Gasoline fuel systems.

(a) Except as provided in paragraph (b) each gasoline fuel system must meet the requirements of § 56.50-70 of this chapter

(b) Each vessel of 65 feet and under must meet the requirements of

§§ 182.15-25, 182.15-30, 182.15-35 and 182.15-40 of this chapter.

§ 169.615 Diesel fuel systems.

(a) Except as provided in paragraph (b) each diesel fuel system must meet the requirements of § 56.50-75 of this chapter.

(b) Each vessel of 65 feet and under must meet the requirements of §§ 182.20-22, 182.20-25, 182.20-30, 182.20-35 and 182.20-40 of this chapter.

STEERING SYSTEMS

§ 169.618 General.

(a) Each vessel must have an effective steering system.

(b) The steering system must be designed to withstand all anticipated loading while under sail, including shocks to the rudder. Additionally, the steering system on vessels with an auxiliary means of propulsion must not be susceptible to damage or jamming at the vessel's maximum astern speed.

(c) The main steering gear must be capable of moving the rudder from hard-over to hard-over at an average rate of not less than 2½° per second with the vessel at design service speed (ahead).

§ 169.619 Reliability.

(a) Except where the OCMI judges it impracticable, the steering system must—

(1) Provide continued or restored steering capability in the event of a failure or malfunction of any single steering system component other than the rudder or rudder stock;

(2) Be independent of other systems, including auxiliary propulsion machinery; and

(3) Be operable in the event of localized fire or flooding.

(b) A main and independent auxiliary steering gear must be provided, except when—

(1) A small vessel uses a tiller or direct mechanical linkage as the primary means of controlling the rudder; or

(2) Installation of an auxiliary steering gear is not possible.

§ 169.621

NOTE: A partial reduction of normal steering capability as a result of malfunction or failure is acceptable. This reduction should not be below that necessary for the safe navigation of the vessel.

(c) The strength and reliability of any component that is not provided in duplicate must be suitable to the cognizant OCMI. Where redundant or backup equipment or components are provided to meet the requirements of paragraphs (a) and (b) of this section, the following must be provided:

(1) A means to readily transfer from the failed equipment or component to the backup.

(2) Readily available tools or equipment necessary to make the transfer.

(3) Instructions for transfer procedures, posted at the main steering location.

(4) A means to steady the rudder while making the transfer.

§ 169.621 Communications.

A reliable means of voice communications must be provided between the main steering location and each alternate steering location.

§ 169.622 Rudder angle indicators.

Each vessel must have a rudder angle indicator at the main steering location that meets the requirements of § 113.40-10 of this chapter, except where a tiller or direct mechanical linkage is the primary means of controlling the rudder.

§ 169.623 Power-driven steering systems.

(a) Power-driven steering systems must have means to be brought into operation from a dead ship condition, without external aid. The system must automatically resume operation after an electric power outage.

(b) Control of power-driven steering systems from the main steering control location must include, as applicable—

(1) Control of any necessary ancillary device (motor, pump, valve, etc.);

(2) A pilot light to indicate operation of each power unit; and

(3) Visual and audible alarms to indicate loss of power to the control system or power units and overload of electric motors.

46 CFR Ch. I (10-1-90 Edition)

(c) Overcurrent protection for steering system electric circuits must meet § 111.93-11 of this chapter, as applicable.

VENTILATION

§ 169.625 Compartments containing diesel machinery.

(a) Spaces containing machinery must be fitted with adequate drip-proof ventilators, trunks, louvers, etc., to provide sufficient air for proper operation of the propulsion and auxiliary engines.

(b) Air-cooled propulsion and auxiliary engines installed below deck must be fitted with air intake ducts or piping from the weather deck. The ducts or piping must be arranged and supported to safely sustain stresses induced by weight and engine vibration and to minimize transfer of vibration to the supporting structure. Prior to installing ventilation for the engines, plans or sketches showing the machinery arrangement including air intakes, exhaust stack, method of attachment of ventilation ducts to the engine, location of spark arresting mufflers and capacity of ventilation blowers must be submitted to the OCMI for approval.

(c) Spaces containing machinery must be fitted with at least two ducts to furnish natural or mechanical supply and exhaust ventilation. One duct must extend to a point near the bottom of the compartment, and be installed so that the ordinary collection of water in the bilge will not trap the duct. Where forced ventilation is installed, the duct extending to the bottom of the compartment must be the exhaust. The total inlet area and the total outlet area of ventilation ducts must be not less than one square inch for each foot of beam of the vessel. These minimum areas must be increased when such ducts are considered part of the air supply to the engines.

(d) All ducts must be of rigid permanent noncombustible construction, properly fastened, supported, and reasonably gastight from end to end.

(e) All supply ducts for ventilation purposes must be provided with cowls or scoops having a free area not less

than twice the required duct area. When the cowls or scoops are screened, the mouth area must be increased to compensate for the area of the screen wire. Dampers are prohibited in supply ducts. Cowls or scoops must be kept open at all times except when weather would endanger the vessel if the openings were not temporarily closed. Supply and exhaust openings must not be located where the natural flow of air is unduly obstructed, or adjacent to possible sources of vapor ignition, and must not be located where exhaust air may be taken into the supply vents.

§ 169.627 Compartments containing diesel fuel tanks.

Unless they are adequately ventilated, enclosed compartments or spaces containing diesel fuel tanks and no machinery must be provided with a gooseneck vent of not less than 2½ inches in diameter. The vent opening must not be located adjacent to possible sources of vapor ignition.

§ 169.629 Compartments containing gasoline machinery or fuel tanks.

Spaces containing gasoline machinery or fuel tanks must have natural supply and mechanical exhaust ventilation meeting the requirements of American Boat and Yacht Council Standard H-2.5, "Design and Construction; Ventilation of Boats Using Gasoline."

§ 169.631 Separation of machinery and fuel tank spaces from accommodation spaces.

(a) Machinery and fuel tank spaces must be separated from accommodation spaces by watertight or vapor tight bulkheads of double diagonal wood, marine plywood, steel plate, or equivalent construction.

(b) On vessels less than 90 feet in length, segregation may be by means of a watertight or vapor tight engine box.

PIPING SYSTEMS

§ 169.640 General.

(a) Vital piping systems, as defined in § 169.642 of this subpart, must meet the material and pressure design re-

quirements of Subchapter F of this chapter.

(b) Except as provided in this paragraph, nonmetallic piping system materials must meet the applicable requirements of 46 CFR 56.60-25.

(1) Rigid nonmetallic materials are acceptable for use in bilge, ballast, and machinery-connected piping systems on vessels less than 120 feet in length, provided that bilge and fire systems do not use the same piping.

(2) Nonmetallic piping is prohibited in fuel systems except where flexible hose is permitted.

(3) Rigid nonmetallic materials may be used in non-vital systems.

§ 169.642 Vital systems.

For the purpose of this part, the following are considered vital systems—

(a) A marine engineering system identified by the OCMI as being crucial to the survival of the vessel or to the protection of the personnel on board; and

(b) On vessels greater than 120 feet in length—

- (1) Bilge system;
- (2) Ballast system;
- (3) Fire protection system;
- (4) Fuel oil system; and
- (5) Steering and steering control system.

BILGE SYSTEMS

§ 169.650 General.

All vessels must be provided with a satisfactory arrangement for draining any compartment, other than small buoyancy compartments, under all practical conditions. Sluice valves are not permitted in watertight bulkheads except as specified in § 169.652(a).

§ 169.652 Bilge piping.

(a) All vessels of 26 feet in length and over must be provided with individual bilge lines and suction for each compartment except that the space forward of the collision bulkhead may be serviced by a sluice valve or portable bilge pump if the arrangement of the vessel is such that ordinary leakage can be removed this way.

(b) The bilge pipe on vessels 65 feet in length and under must be not less

§ 169.654

than one inch nominal pipe size. On vessels greater than 65 but less than 120 feet in length the bilge pipe must be not less than one and one-half inches. Piping on vessels of 120 feet or greater or of 100 gross tons or greater must meet the requirements contained in section 56.50-50 of this chapter.

(c) Each bilge suction must be fitted with a suitable strainer having an open area not less than three times the area of the bilge pipe.

(d) Each individual bilge suction line must be led to a central control point or manifold. Each line must be provided with a stop valve at the control point or manifold and a check valve at some accessible point in the bilge line, or a stop-check valve located at the control point or manifold.

(e) Each bilge pipe piercing the collision bulkhead must be fitted with a screw-down valve located on the forward side of the collision bulkhead and operable from above the weather deck.

§ 169.654 Bilge pumps.

(a) Vessels of less than 65 feet in length must have a portable hand bilge pump having a maximum capacity of 5 gpm.

(b) In addition to the requirements of paragraph (a) of this section, vessels of 26 feet but less than 40 feet in length must have a fixed hand bilge pump or fixed power bilge pump having a minimum capacity of 10 gpm. If a fixed hand pump is installed, it must be operable from on deck.

(c) In addition to the requirements of paragraph (a) of this section, vessels of 40 feet but less than 65 feet must have a fixed power bilge pump having a minimum capacity of 25 gpm.

(d) Vessels of 65 feet in length but less than 120 feet and under 100 gross tons must have two fixed power bilge pumps having a combined minimum capacity of 50 gpm.

(e) Vessels of 120 feet or greater and vessels of 100 gross tons and over must have two fixed power pumps meeting the capacity requirements of § 56.50-55(c) of this chapter.

(f) Each power driven bilge must be self priming.

46 CFR Ch. I (10-1-90 Edition)

(g) Each fixed bilge pump required by this section must be permanently connected to the bilge main.

(h) Bilge pumps may also be connected to the firemain provided that the bilge system and firemain system may be operated simultaneously.

ELECTRICAL

§ 169.662 Hazardous locations.

Electrical equipment must not be installed in lockers that are used to store paint, oil, turpentine, or other flammable liquids unless the equipment is explosion-proof or intrinsically safe in accordance with § 111.105-9 or § 111.105-11 of this chapter.

ELECTRICAL INSTALLATIONS OPERATING AT POTENTIALS OF LESS THAN 50 VOLTS ON VESSELS OF LESS THAN 100 GROSS TONS

§ 169.664 Applicability.

The requirements in this subpart apply to electrical installations operating at potentials of less than 50 volts on vessels of less than 100 gross tons.

§ 169.665 Name plates.

Each generator, motor and other major item of power equipment must be provided with a name plate indicating the manufacturer's name, its rating in volts and amperes or in volts and watts and, when intended for connection to a normally grounded supply, the grounding polarity.

§ 169.666 Generators and motors.

(a) Each vessel of more than 65 feet in length having only electrically driven fire and bilge pumps must have two generators. One of these generators must be driven by a means independent of the auxiliary propulsion plant. A generator that is not independent of the auxiliary propulsion plant must meet the requirements of § 111.10-4(c) of this chapter.

(b) Each generator and motor must be in a location that is accessible, adequately ventilated, and as dry as practicable.

(c) Each generator and motor must be mounted as high as practicable above the bilges to avoid damage by

splash and to avoid contact with low lying vapors.

(d) Each generator must be protected from overcurrent by a circuit breaker, fuse or an overcurrent relay.

§ 169.667 Switchboards.

(a) Each switchboard must be in as dry a location as practicable, accessible, protected from inadvertent entry, and adequately ventilated. All uninsulated current carrying parts must be mounted on nonabsorbent, noncombustible, high dielectric insulating material.

(b) Each switchboard must be—

- (1) Totally enclosed; and
- (2) Of the dead front type.

(c) Each ungrounded conductor of a circuit must have at the point of attachment to the power source either—

- (1) A circuit breaker; or
- (2) A switch and fuse.

(d) Each switch other than one mounted on a switchboard must be of the enclosed type.

§ 169.668 Batteries.

(a) Each battery must be in a location that allows the gas generated in charging to be easily dissipated by natural or induced ventilation.

(b) Except as provided in paragraph (c) of this section, a battery must not be located in the same compartment with a gasoline tank or gasoline engine.

(c) If compliance with paragraph (b) of this section is not practicable, the battery must be effectively screened by a cage or similar structure to minimize the danger of accidental spark through dropping a metal object across the terminals.

(d) Each battery must be located as high above the bilges as practicable and secured against shifting with motion of the vessel. Each battery and battery connection must be accessible so as to permit removal.

(e) All connections must be made to battery terminals with permanent type connectors. Spring clips or other temporary type clamps may not be used.

(f) Each battery must be located in a tray of lead or other suitable material resistant to deteriorating action by the electrolyte.

(g) Each battery charger intended for connection to a commercial supply voltage must employ a transformer of the isolating type. An ammeter that is readily visible must be included in the battery charger circuit.

(h) A voltage dropping resistor, provided for charging a battery, must be mounted in a ventilated noncombustible enclosure that prevents hazardous temperatures at adjacent combustible materials.

(i) The main supply conductor from the battery must have an emergency switch, located as close as practicable to the battery, that opens all ungrounded conductors.

(j) If a storage battery is not in the same compartment and adjacent to the panel or box that distributes power to the various lighting, motor and appliance branch circuits, the storage battery lead must be fused at the battery.

§ 169.669 Radiotelephone equipment.

A separate circuit from the switchboard must be provided for each radiotelephone installation.

§ 169.670 Circuit breakers.

(a) Each circuit breaker must be of the manually reset type designed for—

- (a) Inverse time delay;
- (b) Instantaneous short circuit protection; and

(c) Repeated opening of the circuit without damage to the circuit breaker.

§ 169.671 Accessories.

Each light, receptacle and switch exposed to the weather must be watertight and must be constructed of corrosion-resistant material.

§ 169.672 Wiring for power and lighting circuits.

(a) Wiring for power and lighting circuits must have copper conductors, of 14 AWG or larger, and—

- (1) Meet Article 310-8 and Table 310-13 of the National Electrical Code;
- (2) Be listed as "50 volt boat cable"; or
- (3) Meet Subpart 111.60 of this chapter.

§ 169.673

(b) Wiring for power and lighting circuits on new vessels must have stranded conductors.

(c) Conductors must be sized so that—

(1) They are adequate for the loads carried; and

(2) The voltage drop at the load terminals is not more than 10 percent.

§ 169.673 Installation of wiring for power and lighting circuits.

(a) Wiring must be run as high as practicable above the bilges.

(b) Wiring, where subject to mechanical damage, must be protected.

(c) A wiring joint or splice must be mechanically secure and made in a junction box or enclosure.

(d) Unless a splice is made by an insulated pressure wire connector, it must be thoroughly soldered and taped with electrical insulating tape or the soldered joint must be otherwise protected to provide insulation equivalent to that of the conductors joined.

(e) Where ends of stranded conductors are to be clamped under terminal screws, they must be formed and soldered unless fitted with pressure terminal connectors.

(f) Conductors must be protected from overcurrent in accordance with their current-carrying capacities.

(g) Conductors supplying motors and motor operated appliances must be protected by a separate overcurrent device that is responsive to motor current. This device must be rated or set at not more than 125 percent of the motor full-load current rating.

(h) On metallic vessels the enclosures and frames of all major electrical equipment must be permanently grounded to the metal hull of the vessel by the mounting bolts or other means. Cable armor must not be used as the normal grounding means.

(i) On nonmetallic vessels, the enclosures and frames of major electrical equipment must be bonded together to a common ground by a normally non-current carrying conductor.

(j) For grounded systems the negative polarity of the supply source must be grounded to the metal hull or, for nonmetallic vessels, connected to the common ground.

46 CFR Ch. I (10-1-90 Edition)

(k) On a nonmetallic vessel, where a ground plate is provided for radio equipment it must be connected to the common ground.

(l) For grounded systems, hull return must not be used except for engine starting purposes.

ELECTRICAL INSTALLATIONS OPERATING AT POTENTIALS OF 50 Volts or MORE ON VESSELS OF LESS THAN 100 GROSS TONS

§ 169.674 Applicability.

The requirements in this subpart apply to electrical installations operating at potentials of 50 volts or more, on vessels of less than 100 gross tons.

§ 169.675 Generators and motors.

(a) Each generator and motor must be fitted with a nameplate of corrosion-resistant material marked with the following information as applicable:

(1) Name of manufacturer.

(2) Manufacturer's type and frame designation.

(3) Output in kilowatts or horsepower rating.

(4) Kind of rating (continuous, intermittent, etc.).

(5) Revolutions per minute at rated load.

(6) Amperes at rated load.

(7) Voltage.

(8) Frequency if applicable.

(9) Number of phases, if applicable.

(10) Type of winding (for direct-current motors).

(b) Each vessel of more than 65 feet in length having only electrically driven fire and bilge pumps must have two generators. One of these generators must be driven by a means independent of the auxiliary propulsion plant. A generator that is not independent of the auxiliary propulsion plant must meet the requirements of § 111.10-4(c) of this chapter.

(c) Each generator and motor must be in a location that is accessible, adequately ventilated, and as dry as practicable.

(d) Each generator and motor must be mounted as high as practicable above the bilges to avoid damage by splash and to avoid contact with low lying vapors.

(e) Each motor for use in a location exposed to the weather must be of the watertight or waterproof type or must be enclosed in a watertight housing. The motor enclosure or housing must be provided with a check valve for drainage or a tapped hole at the lowest part of the frame for attaching a drain pipe or drain plug.

(f) Except as provided in paragraphs (g) and (h) of this section, each generator and motor for use in a machinery space must be designed for an ambient temperature of 50 degrees C. (122 degrees F.).

(g) A generator or motor may be designed for an ambient temperature of 40 degrees C. (104 degrees F.) if the vessel is designed so that the ambient temperature in the machinery space will not exceed 40 degrees C. under normal operating conditions.

(h) A generator or motor designed for 40 degrees C. may be used in a 50 degrees C. ambient location provided it is derated to 80 percent of full load rating, and the rating or setting of the overcurrent device is reduced accordingly. A nameplate specifying the derated capacity must be provided for each motor and generator.

(i) A voltmeter and an ammeter must be provided that can be used for measuring voltage and current of each generator that is in operation. For each alternating-current generator a means for measuring frequency must also be provided. Additional control equipment and measuring instruments must be provided, if needed, to ensure satisfactory operation of each generator.

§ 169.676 Grounded electrical systems.

(a) Except as provided in paragraph (b) of this section, each electrical system must meet § 111.05 of this chapter.

(b) Ground detection is not required.

§ 169.677 Equipment protection and enclosure.

(a) Except as provided in this section, all electrical equipment including motors, generators, controllers, distribution panels, consoles, etc., must be at least dripproof and protected.

(b) Equipment mounted on a hinged door of an enclosure must be con-

structed or shielded so that no live parts of the door mounted equipment will be exposed to accidental contact by a person with the door open and the circuit energized.

(c) Any cabinet, panel, or box containing more than one source of potential in excess of 50 volts must be fitted with a sign warning personnel of this condition and identifying the circuits to be disconnected to remove all the potentials in excess of 50 volts.

(d) Each distribution panelboard must be enclosed.

§ 169.678 Main distribution panels and switchboards.

(a) A distribution panel to which the generator leads are connected, and from which the electric leads throughout the vessel directly or indirectly receive their electric power is a switchboard.

(b) Each switchboard must have a driphood or an equivalent means of protecting against falling liquid.

(c) Nonconductive deck materials, mats, or gratings must be provided in front of each switchboard.

(d) If the switchboard is accessible from the rear, nonconductive deck material, mats, or gratings must be provided in the rear of the switchboard.

(e) Metal cases of instruments and secondary windings of instrument transformers must be grounded.

(f) Each switchboard must be placed in a location that is accessible, adequately ventilated, and as dry as practicable. All uninsulated current carrying parts must be mounted on nonabsorbent, noncombustible, high dielectric insulating material.

(g) Each switchboard must be of the dead front type.

(h) Each switchboard must have front and, if accessible from the back, rear non-conducting hand rails except on vessels where the surrounding bulkheads and decks are of an insulating material such as fiberglass or wood.

§ 169.679 Wiring for power and lighting circuits.

Wiring for each power and lighting circuit must meet Subpart 111.60 of this chapter.

§ 169.680

46 CFR Ch. I (10-1-90 Edition)

§ 169.680 Installation of wiring for power and lighting circuits.

(a) Wiring must be run as high as practicable above the bilges.

(b) Each cable installed where particularly susceptible to damage such as locations in way of doors, hatches, etc., must be protected by removable metal coverings, angle irons, pipe, or other equivalent means. All metallic coverings must be electrically continuous and grounded to the metal hull or common ground, and all coverings such as pipe that may trap moisture must be provided with holes for drainage. Where cable protection is carried through a watertight deck or bulkhead, the installation must maintain the watertight integrity of the structure.

(c) Each cable entering a box or fitting must be protected from abrasion, and must meet the following requirements:

(1) Each opening through which conductors enter must be adequately closed.

(2) Cable armor must be secured to the box or fitting.

(3) In damp or wet locations, each cable entrance must be watertight.

(d) The enclosures of all equipment must be permanently grounded to the metal hull of the vessel by the mounting bolts or other means. Cable armor must not be used as the normal grounding means.

(e) On a nonmetallic vessel, the enclosures must be bonded to a common ground by a normal noncurrent carrying conductor.

(f) On a nonmetallic vessel, where a ground plate is provided for radio equipment it must be connected to the common ground.

(g) Except as provided in paragraph (i) of this section, each armored cable must have a metallic covering that is—

(1) Electrically and mechanically continuous; and

(2) Grounded at each end of the run to—

(i) The metal hull; or

(ii) The common ground required by paragraph (e) of this section on non-metallic vessels.

(h) In lieu of being grounded at each end of the run as required by paragraph (g) of this section, final sub-cir-

cuits may be grounded at the supply end only.

(i) All equipment, including switches, fuses, lampholders, etc., must be of a type designed for the proper potential and be so identified.

(j) Except as provided in paragraph (l) of this section, each junction box, connection box, and outlet box, must have an internal depth of at least 1½ inches.

(k) For a box incorporated in a fixture having a volume of not less than 20 cubic inches, the depth may be decreased to not less than 1 inch.

(l) Each conductor, except a fixture wire within a box, must have a free space computed using the volume per conductor given in Table 169.680(l). If a fitting or device such as a cable clamp, hickey, switch or receptacle is contained in the box, each fitting or device must count as one conductor.

TABLE 169.680(l)

Size of conductor A.W.G.	Free space for each conductor in box, cubic inches
14.....	2.0
12.....	2.25
8.....	2.50
4.....	3.0

(m) Each junction box, connection box, and outlet box for use in a damp or wet location must be of watertight construction.

(n) Each lighting fixture must be constructed in accordance with the requirements of Subchapter J of this chapter.

(o) A separate circuit from the switchboard must be provided for each radiotelephone installation.

(p) Knife switches must be so placed or designed that gravity or vibration will not tend to close them. Knife switches, unless of the double throw type, must be connected so that the blades are dead when the switch is in the open position.

(q) Circuits must be connected to the fuse end of switches and to the coil end of circuit breakers, except that generator leads or incoming feeders may be connected to either end of circuit breakers.

(r) Receptacle outlets and attachment plugs for the attachment of portable lamps, tools, and similar apparatus supplied as ship's equipment and operating at 100 volts or more, must provide a grounding pole and a grounding conductor in the portable cord to ground the non-current carrying metal parts of the apparatus.

(s) Receptacle outlets of the type providing a grounded pole must be of a configuration that will not permit the dead metal parts of portable apparatus to be connected to a live conductor.

§ 169.681 Disconnect switches and devices.

(a) Externally operable switches or circuit breakers must be provided for motor and controller circuits and must open all ungrounded conductors of the circuit.

(b) If the disconnect means is not within sight of the equipment that the circuit supplies, means must be provided for locking the disconnect device in the "open" position.

(c) For circuits protected by fuses, the disconnect switch required for fuses in § 169.683(b) of this chapter is adequate for disconnecting the circuit from the supply.

(d) The disconnect means may be in the same enclosure with motor controllers.

(e) Disconnect means must be provided to open all conductors of generator and shore power cables.

[CGD 83-005, 51 FR 896, Jan. 9, 1986; 51 FR 10632, Mar. 28, 1986]

§ 169.682 Distribution and circuit loads.

(a) Except as provided in paragraph (b) of this section, the connected load on a lighting branch circuit must not exceed 80 percent of the rating of the overcurrent protective device, computed using the greater of—

- (1) The lamp sizes to be installed; or
- (2) 50 watts per outlet.

(b) Circuits supplying electrical discharge lamps must be computed using the ballast input current.

(c) The branch circuit cables for motor and lighting loads must be no smaller than No. 14 AWG.

§ 169.683 Overcurrent protection, general.

(a) Overcurrent protection must be provided for each ungrounded conductor for the purpose of opening the electric circuit if the current reaches a value that causes an excessive or dangerous temperature in the conductor or conductor insulation.

(b) Disconnect means must be provided on the supply side of and adjacent to all fuses for the purpose of de-energizing the fuses for inspection and maintenance purposes. All disconnect means must open all ungrounded conductors of the circuit simultaneously.

(c) Each conductor, including a generator lead and shore power cable, must be protected in accordance with its current-carrying capacity.

(d) If the allowable current-carrying capacity of a conductor does not correspond to a standard size fuse, the next larger size or rating may be used but not exceeding 150 percent of the allowable current-carrying capacity of the conductor.

(e) Plug (screw in type) fuses and fuseholders must not be used in circuits exceeding 125 volts between conductors. The screw shell of plug type fuseholders must be connected to the load of the circuit. Edison base fuses may not be used.

(f) If the allowable current-carrying capacity of the conductor does not correspond to a standard rating of circuit breakers, the next larger rating not exceeding 150 percent of the allowable current-carrying capacity of the conductor may be used.

(g) Lighting branch circuits must be protected against overcurrent either by fuses or circuit breakers rated at not more than 20 amperes.

(h) Each circuit breaker must be of the manually reset type designed for—

- (1) Inverse time delay;
- (2) Instantaneous short circuit protection; and
- (3) Repeated opening of the circuit in which it is to be used without damage to the circuit breaker.

(i) Circuit breakers must indicate whether they are in the open or closed position.

(j) Devices such as instruments, pilot lights, ground detector lights, potential transformers, etc. must be sup-

§ 169.684

plied by circuits protected by overcurrent devices.

(k) Each generator must be protected with an overcurrent device set at a value not exceeding 15 percent above the full-load rating for continuous rated machines or the overload rating for special rated machines.

§ 169.684 Overcurrent protection for motors and motor branch circuits.

(a) Except as provided in paragraph (d) of this section, each motor must be provided with running protection against overcurrent. A protective device integral with the motor that is responsive to motor current or to both motor current and temperature may be used.

(b) The motor branch circuit conductors, the motor control apparatus, and the motors must be protected against overcurrent due to short circuits or grounds with overcurrent devices.

(c) The motor branch circuit overcurrent device must be capable of carrying the starting current of the motor.

(d) Each manually started continuous duty motor, rated at one horsepower or less, that is within sight from the starter location, is considered as protected against overcurrent by the overcurrent device protecting the conductors of the branch circuit.

§ 169.685 Electric heating and cooking equipment.

(a) Each electric space heater for heating rooms and compartments must be provided with thermal cutouts to prevent overheating. Each heater must be so constructed and installed as to prevent the hanging of towels, clothing, etc., on the heater, and to prevent overheating of heater parts and adjacent bulkheads or decks.

(b) All electric cooking equipment, attachments, and devices, must be of rugged construction and so designed as to permit complete cleaning, maintenance, and repair.

(c) Doors for electric cooking equipment must be provided with heavy duty hinges and locking devices to prevent accidental opening in heavy seas.

46 CFR Ch. I (10-1-90 Edition)

(d) Electric cooking equipment must be mounted to prevent dislodgment in heavy seas.

(e) For each grill or similar type cooking equipment, means must be provided to collect grease or fat and to prevent spillage on wiring or the deck.

(f) Where necessary for safety of personnel, grab rails must be provided. Each electric range must be provided with sea rails with suitable barriers to resist accidental movement of cooking pots.

§ 169.686 Shore power.

If a shore power connection is provided it must meet the following requirements:

(a) A shore power connection box or receptacle and a cable connecting this box or receptacle to the main distribution panel must be permanently installed in an accessible location.

(b) The shore power cable must be provided with a disconnect means located on or near the main distribution panel.

ELECTRICAL INSTALLATIONS ON VESSELS OF 100 GROSS TONS AND OVER

§ 169.687 General.

Except as provided in this subpart, electrical installations on vessels of 100 gross tons and over must meet the requirements of Parts 110-113 of this chapter.

§ 169.688 Power supply.

(a) The requirements of this section apply in lieu of Subpart 111.10 of this chapter.

(b) If a generator is used to provide electric power for any vital system listed in § 169.642 of this subchapter, at least two generating sets must be provided. At least one required generating set must be independent of the auxiliary propulsion machinery. A generator that is not independent of the auxiliary propulsion plant must meet the requirements of § 111.10-4(c) of this chapter. With any one generating set stopped, the remaining set(s) must provide the power necessary for each of the following:

(1) Normal at sea load plus starting of the largest vital system load the

can be started automatically or started from a space remote from the main distribution panel (switchboard).

(2) All vital systems simultaneously with nonvital loads secured.

(c) The adequacy of ship service generators must be demonstrated to the satisfaction of the OCMI during the initial inspection required by § 169.221 of this subchapter.

§ 169.689 Demand loads.

Demand loads must meet § 111.60-7 of this chapter except that smaller demand loads for motor feeders are acceptable if the cable is protected at or below its current-carrying capacity.

§ 169.690 Lighting branch circuits.

Each lighting branch circuit must meet the requirements of § 111.75-5 of this chapter, except that—

(a) Appliance loads, electric heater loads, and isolated small motor loads may be connected to a lighting distribution panelboard; and

(b) Branch circuits in excess of 30 amperes may be supplied from a lighting distribution panelboard.

§ 169.691 Navigation lights.

Navigation light systems must meet the requirements of § 111.75-17 of this chapter except the requirements of § 111.75-17 (a) and (c).

§ 169.692 Remote stop stations.

In lieu of the remote stopping systems required by Subpart 111.103 of this chapter, remote stop stations must be provided as follows:

(a) A propulsion shutdown in the pilothouse for each propulsion unit,

(b) A bilge slop or dirty oil discharge shutdown at the deck discharge,

(c) A ventilation shutdown located outside the space ventilated, and

(d) A shutdown from outside the engine room for the fuel transfer pump, fuel oil service pump, or any other fuel oil pump.

§ 169.693 Engine order telegraph systems.

An engine order telegraph system is not required.

Subpart 169.700—Vessel Control, Miscellaneous Systems, and Equipment

§ 169.703 Cooking and heating.

(a) Cooking and heating equipment must be suitable for marine use. Cooking installations must meet the requirements of ABYC Standard A-3, "Recommended Practices and Standards covering galley stoves."

(b) The use of gasoline for cooking, heating or lighting is prohibited on all vessels.

(c) The use of liquefied petroleum gas (LPG) or compressed natural gas (CNG) is authorized for cooking purposes only.

(1) The design, installation and testing of each LPG system must meet either ABYC A-1 or Chapter 6 of NFPA 302.

(2) The design, installation, and testing of each CNG system must meet either Chapter 6 of NFPA 302 or ABYC A-22.

(3) The stowage of each cylinder must comply with the requirements for the stowage of cylinders of liquefied or non-liquefied gases used for heating, cooking, or lighting in Part 147 of this chapter.

(4) If the fuel supply line enters an enclosed space on the vessel, a remote shutoff valve must be installed which can be operated from a position adjacent to the appliance. The valve must be a type that will fail closed, and it must be located between the regulator and the point where the fuel supply enters the enclosed portion of the vessel.

(5) If Chapter 6 of NFPA 302 is used as the standard, then the following additional requirements must also be met:

(i) LPG or CNG must be odorized in accordance with ABYC A-1.5.d or A-22.5.b, respectively.

(ii) Ovens must be equipped with a flame failure switch in accordance with ABYC A-1.10.b for LPG or A-22.10.b for CNG.

(iii) The marking and mounting of LPG cylinders must be in accordance with ABYC-1.6.b.

(iv) LPG cylinders must be of the vapor withdrawal type as specified in ABYC A-1.5.b.

(6) If ABYC A-1 or A-22 is used as the standard for an LPG or CNG installation, then pilot lights or glow plugs are prohibited.

(7) If ABYC A-22 is used as the standard for a CNG installation, then the following additional requirements must also be met:

(i) The CNG cylinders, regulating equipment, and safety equipment must meet the installation, stowage, and testing requirements of paragraphs 6-5.11.1, 2, 3; 6-5.11.5; and 6-5.11.8 of NFPA 302.

(ii) The use or stowage of stoves with attached cylinders is prohibited as specified in paragraph 6-5.1 of NFPA 302.

§ 169.705 Mooring equipment.

Each vessel must be fitted with ground tackle and hawsers deemed necessary by the Officer in Charge, Marine Inspection, depending upon the size of the vessel and the waters on which it operates.

§ 169.709 Compass.

(a) Each vessel must be fitted with a magnetic steering compass.

(b) Each vessel certificated for exposed water service must have an emergency compass in addition to the one required in paragraph (a).

§ 169.711 Emergency lighting.

(a) Each vessel must be equipped with a suitable number of portable battery lights.

(b) Each vessel of 100 gross tons and over must satisfy the emergency lighting requirements for a miscellaneous self-propelled vessel as contained in Part 112 of this chapter.

(c) Each vessel of less than 100 gross tons that has accommodation spaces located below the main deck must have permanently installed lighting which is connected to a single emergency power source or permanently installed, relay-controlled, battery-operated lanterns. The lighting or lanterns must be fitted along the avenues of escape, in the wheelhouse, and in the engine compartment.

(1) A single emergency power source, if provided, must be independent of the normal power source and must be either a generator or a storage battery.

(d) The emergency power source and batteries for individual, battery-operated, lanterns must have the capacity to supply all connected loads simultaneously for at least 6 hours of continuous operations. If the emergency lighting is provided by battery power, then an automatic battery charger that maintains the battery(s) in a fully charged condition must be provided.

(e) The emergency lighting system must be capable of being fully activated from a single location.

§ 169.713 Engine room communication system.

An efficient communication system must be provided between the principal steering station and the engine room on vessels which are not equipped with pilothouse controls. If, in the opinion of the Officer in Charge, Marine Inspection, this is necessary for proper operation of the vessel.

§ 169.715 Radio.

(a) Radiotelegraph and radiotelephone installations are required on certain vessels. Details of these requirements and the details of the installations are contained in regulations of the Federal Communications Commission (FCC) in Title 47, Code of Federal Regulations, Part 83.

(b) A valid certificate issued by the FCC is evidence that the radio installation is in compliance with the requirements of that agency.

§ 169.717 Fireman's outfit.

(a) Each vessel greater than 120 feet but less than 150 feet in length must carry one approved fireman's outfit consisting of—

- (1) An approved-contained breathing apparatus with belt and lifeline;
- (2) An approved flame safety lamp;
- (3) One flashlight listed by an independent testing laboratory as suitable for use in hazardous locations;
- (4) One fire ax;

(5) Boots and gloves of rubber or other electrically nonconducting material;

(6) A rigid helmet which provides effective protection against impact; and

(7) Protective clothing.

(b) Each vessel 150 feet or greater must carry two fireman's outfits. The outfits must be stowed in widely separated accessible locations.

(c) Lifelines must be of steel or bronze wire rope. Steel wire rope must be either inherently corrosion resistant or made so by galvanizing or thinning. Each end must be fitted with a hook with keeper having a throat opening which can be readily slipped over a ¼-inch bolt. The total length of the lifeline is dependent upon the size and arrangement of the vessel, and more than one line may be hooked together to achieve the necessary length. No individual length of lifeline may be less than 50 feet in length. The assembled lifeline must have a minimum breaking strength of 1,500 pounds.

(d) A complete recharge must be carried out for each self-contained breathing apparatus and a complete set of spare batteries and bulb must be carried for each flashlight. The spares must be stowed in the same location as the equipment it is to reactivate.

(e) Protective clothing must be constructed of material that will protect the skin from the heat of fire and burns from scalding steam. The outer surface must be water resistant.

§ 169.721 Storm sails and halyards (exposed and partially protected waters only).

(a) Unless clearly unsuitable, each vessel must have one storm trysail of appropriate size. It must be sheeted independently of the boom and must have neither headboard nor battens.

(b) Each vessel having headsails must also have one storm head sail of appropriate size and strength.

(c) Each vessel must have at least two halyards, each capable of hoisting a sail.

§ 169.723 Safety belts.

Each vessel must carry a harness type safety belt conforming to Off-shore Racing Council (ORC) stand-

ards for each person on watch or required to work the vessel in heavy weather.

§ 169.725 First aid kit.

Each vessel must carry an approved first aid kit, constructed and fitted in accordance with Subpart 160.041 of this chapter.

§ 169.726 Radar reflector.

Each nonmetallic vessel less than 90 feet in length must exhibit a radar reflector of suitable size and design while underway.

MARKINGS

§ 169.730 General alarm bell switch.

On vessels of 100 gross tons and over there must be a general alarm bell switch in the pilothouse, clearly and permanently identified by lettering on a metal plate or with a sign in red letters on a suitable background: "GENERAL ALARM"

§ 169.731 General alarm bells.

On vessels of 100 gross tons and over each general alarm bell must be identified by red lettering at least ½ inch high: "GENERAL ALARM—WHEN BELL RINGS GO TO YOUR STATION."

§ 169.732 Carbon dioxide alarm.

Each carbon dioxide alarm must be conspicuously identified: "WHEN ALARM SOUNDS—VACATE AT ONCE. CARBON DIOXIDE BEING RELEASED."

§ 169.733 Fire extinguishing branch lines.

Each branch line valve of every fire extinguishing system must be plainly and permanently marked indicating the spaces served.

§ 169.734 Fire extinguishing system controls.

Each control cabinet or space containing valves or manifolds for the various fire extinguishing systems must be distinctly marked in conspicuous red letters at least 2 inches high: "CARBON DIOXIDE FIRE EXTINGUISHING SYSTEM," or "HALON

FIRE EXTINGUISHING SYSTEM," as appropriate.

§ 169.735 Fire hose stations.

Each fire hydrant must be identified in red letters and figures at least two inches high "FIRE STATION NO. 1," "2," "3," etc. Where the hose is not stowed in the open or readily seen behind glass, this identification must be placed so as to be readily seen from a distance.

§ 169.736 Self-contained breathing apparatus.

Each locker or space containing self-contained breathing apparatus must be marked "SELF-CONTAINED BREATHING APPARATUS."

§ 169.737 Hand portable fire extinguishers.

Each hand portable fire extinguisher must be marked with a number, and the location where it is stowed must be marked with a corresponding number. The marks must be at least ¼ inch high. Where only one type and size of hand portable fire extinguisher is carried, the numbering may be omitted.

§ 169.738 Emergency lights.

Each emergency light must be marked with a letter "E" at least ½ inch high.

§ 169.739 Lifeboats.

(a) The name and port of the vessel marked on its stern as required by § 67.15 of this chapter must be plainly marked or painted on each side of the bow of each lifeboat in letters not less than 3 inches high.

(b) Each lifeboat must have its number plainly marked or painted on each side of the bow in figures not less than 3 inches high. The lifeboats on each side of the vessel must be numbered from forward aft, with the odd numbers on the starboard side.

(c) The cubical contents and number of persons allowed to be carried in each lifeboat must be plainly marked or painted on each side of the bow of the lifeboat in letters and numbers not less than 1½ inches high. In addition, the number of persons allowed must be plainly marked or painted on top of at least 2 thwarts in letters and numbers not less than 3 inches high.

(d) Each oar must be conspicuously marked with the vessel's name.

(e) Where mechanical disengaging apparatus is used, the control effecting the release of the lifeboat must be painted bright red and must have thereon in raised letters either the words—"DANGER-LEVER DROPS BOAT", or the words—"DANGER-LEVER RELEASES HOOKS".

(f) The top of thwarts, side benches and footings of lifeboats must be painted or otherwise colored international orange. The area in way of the red mechanical disengaging gear control lever, from the keel to the side bench, must be painted or otherwise colored white, to provide a contrasting background for the lever. This band of white should be approximately 11 inches wide depending on the internal arrangements of the lifeboat.

§ 169.740 Liferafts and lifefloats.

(a) Rigid type liferafts and lifefloats, together with their oars and paddles, must be conspicuously marked with the vessel's name and port of the vessel as marked on its stern as required by § 67.15 of this chapter.

(b) The number of persons allowed on each rigid type liferaft and lifefloat must be conspicuously marked or painted thereon in letters and numbers at least 1½ inches high.

(c) There must be stenciled in a conspicuous place in the immediate vicinity of each inflatable liferaft the following:

INFLATABLE LIFERAFT NO—

— PERSONS CAPACITY

These markings must not be placed on the inflatable liferaft containers.

§ 169.741 Personal flotation devices and ring life buoys.

Each personal flotation device and ring life buoy must be marked with the vessel's name.

§ 169.742 Firehose and axes.

Each fire hose and axe must be marked with the vessel's name.

§ 169.743 Portable magazine chests.

Portable magazine chests must be marked in letters at least 3 inches

h: "PORTABLE MAGAZINE
EST—FLAMMABLE—KEEP
HTS AND FIRE AWAY."

9.744 Emergency position indicating
radio beacon (EPIRB).

Each EPIRB must be marked with
vessel's name.

9.745 Escape hatches and emergency
exits.

Each escape hatch and other emer-
gency exit must be marked on both
sides using at least 1-inch letters:
"EMERGENCY EXIT. KEEP
CLEAR", unless the markings are
deemed unnecessary by the Officer in
Charge, Marine Inspection.

9.746 Fuel shutoff valves.

Each remote fuel shutoff station
must be marked in at least 1-inch let-
ters indicating purpose of the valves
and direction of operation.

9.747 Watertight doors and hatches.

Each watertight door and watertight
hatch must be marked on both sides in
at least 1-inch letters: "WATER-
TIGHT DOOR—CLOSE IN EMER-
GENCY" or "WATERTIGHT
HATCH—CLOSE IN EMERGENCY".
Unless the markings are deemed un-
necessary by the Officer in Charge,
Marine Inspection.

9.750 Radio call sign.

Each vessel certificated for exposed
partially protected water service
must have its radio call sign perma-
nently displayed or readily available
display upon its deck or cabin top
in letters at least 18 inches high.

Subpart 169.800—Operations

9.805 Exhibition of licenses.

Licensed personnel on any vessel
subject to this subchapter shall have
their licenses in their possession and
available for examination at all times
when the vessel is being operated.

9.807 Notice of casualty.

(a) The owner, agent, master, or
person in charge of a vessel involved in
a marine casualty shall give notice as
soon as possible to the nearest Coast

Guard Marine Safety or Marine In-
spection Office, whenever the casualty
involves any of the following:

(1) Each accidental grounding and
each intentional grounding which also
meets any of the other reporting crite-
ria or creates a hazard to navigation,
the environment or the safety of the
vessel;

(2) Loss of main propulsion or pri-
mary steering or any associated com-
ponent or control system which causes
a reduction of the maneuvering capa-
bilities of the vessel. Loss means that
systems, components, sub-system or
control systems do not perform the
specified or required function;

(3) An occurrence materially and ad-
versely affecting the vessel's seawor-
thiness or fitness for service or route,
including but not limited to fire, flood-
ing, or failure or damage to fixed fire
extinguishing systems, lifesaving
equipment, auxiliary power generating
equipment, Coast Guard approved
equipment or bilge pumping systems;

(4) Loss of life;

(5) Injury causing a person to
remain incapacitated for a period in
excess of 72 hours; or

(6) An occurrence resulting in
damage to property in excess of
\$25,000.00. Damage includes the cost
necessary to restore the property to
the service condition which existed
prior to the casualty but does not in-
clude the cost of salvage, gas freeing,
drydocking, or demurrage.

(b) The notice must include the
name and official number of the vessel
involved, the name of the vessel's
owner or agent, nature, location and
circumstances of the casualty, nature
and extent of injury to persons, and
the damage to property.

(c) In addition to the notice re-
quired, the person in charge of the
vessel shall report in writing or in
person, as soon as possible to the Of-
ficer in Charge, Marine Inspection at
the port in which the casualty oc-
curred or nearest the port of first ar-
rival. Casualties must be reported on
Form CG-2692.

(d) The owner, agent, master, or
other person in charge of any vessel
involved in a marine casualty shall
retain for three years the voyage
records of the vessel such as both

§ 169.809

rough and smooth deck and engine-room logs, navigation charts, navigation work books, compass deviation cards gyrocompass records, record of draft, aids to mariners, radiograms sent and received, the radio log, and crew, sailing school student, instructor, and guest lists. The owner agent, master, or other officer in charge, shall make these records available to a duly authorized Coast Guard officer or employee for examination upon request.

(e) Whenever a vessel collides or is connected with a collision with a buoy or other aid to navigation under the jurisdiction of the Coast Guard, the person in charge of the vessel shall report the accident to the nearest Officer in Charge, Marine Inspection. A report on Form CG-2692 is not required unless any of the results listed in paragraph (b) of this section occur.

§ 169.809 Charts and nautical publications.

As appropriate for the intended voyage, all vessels must carry adequate and up-to-date—

- (a) Charts;
- (b) Sailing directions;
- (c) Coast pilots;
- (d) Light lists;
- (e) Notices to mariners;
- (f) Tide tables; and
- (g) Current tables.

§ 169.813 Station bills.

(a) A station bill (muster list) shall be prepared and signed by the master of the vessel. The master shall ensure that the bill is posted in conspicuous locations throughout the vessel, particularly in the living spaces, before the vessel sails.

(b) The station bill must set forth the special duties and duty station of each member of the ship's company for the various emergencies. The duties must, as far as possible, be comparable with the regular work of the individual. The duties must include at least the following and any other duties necessary for the proper handling of a particular emergency:

(1) The closing of airports, watertight doors, scuppers, sanitary and other discharges which lead through the vessel's hull below the margin line,

46 CFR Ch. I (10-1-90 Edition)

etc., the stopping of fans and ventilating systems, and the operating of all safety equipment.

(2) The preparing and launching of lifeboats and liferafts.

(3) The extinguishing of fire.

(4) The mustering of guests, if carried, including the following:

(i) Warning the guests.

(ii) Seeing that they are dressed and have put on their personal flotation devices in a proper manner.

(iii) Assembling the guests and directing them to the appointed stations.

(iv) Keeping order in the passageways and stairways and generally controlling the movement of the guests.

(v) Seeing that a supply of blankets is taken to the lifeboats.

§ 169.815 Emergency signals.

(a) The station bill must set forth the various signals used for calling the ship's company to their stations and for giving instructions while at their stations.

(b) On vessels of 100 gross tons and over the following signals must be used.

(1) The first alarm signal must be a continuous blast of the vessel's whistle for a period of not less than 10 seconds supplemented by the continuous ringing of the general alarm bells for not less than 10 seconds.

(2) For dismissal from fire alarm stations, the general alarm must be sounded three times supplemented by three short blasts of the vessel's whistle.

(3) The signal for boat stations or boat drill must be a succession of more than six short blasts, followed by one long blast, of the vessel's whistle supplemented by a comparable signal on the general alarm bells.

(4) For dismissal from boat stations, three must be three short blasts of the whistle.

(c) Where whistle signals are used for handling the lifeboats, they must be as follows:

(1) To lower lifeboats, one short blast.

(2) To stop lowering the lifeboats, two short blasts.

17 Master to instruct ship's company.

The master shall conduct drills and instructions as necessary to insure all hands are familiar with their duties as specified in the station bill.

19 Manning of lifeboats and liferafts.

The provisions of this section apply to all vessels equipped with lifeboats and/or liferafts.

The master shall place a licensed deck officer, an able seaman, or a certified lifeboatman in command of each lifeboat or liferaft. Each lifeboat or liferaft with a prescribed complement of 25 or more persons must have an additional certificated lifeboatman.

The person in charge of each lifeboat or liferaft shall have a list of its occupants, and shall see that the persons under his orders are acquainted with their duties.

21 Patrol person.

The master shall designate a member of the ship's company to be a patrol person, whenever the vessel is operational.

The roving patrol person shall frequently visit all areas to ensure safe conditions are being maintained.

23 Openings.

Except as provided in paragraph 22 of this section, all watertight doors, division bulkheads, hatches, and openings in the hull must be kept closed during the navigation of the vessel.

The master may permit hatches and other openings to be uncovered or opened for reasonable purposes such as ship's maintenance, when existing conditions warrant the action and the openings can readily be closed.

24 Compliance with provisions of certificate of inspection.

The master or person in charge of the vessel shall see that all of the provisions of the certificate of inspection are strictly adhered to. Nothing in this part shall be construed as limiting the master or person in charge of the

vessel, on his own responsibility, from diverting from the route prescribed in the certificate of inspection or taking such other steps as he deems necessary and prudent to assist vessels in distress or for other similar emergencies.

§ 169.825 Wearing of safety belts.

The master of each vessel shall ensure that each person wears an approved safety harness when aloft or working topside in heavy weather.

TESTS, DRILLS, AND INSPECTIONS

§ 169.826 Steering, communications and control.

The master shall test the vessel's steering gear, signaling whistle, engine controls, and communications equipment prior to getting underway.

§ 169.827 Hatches and other openings.

The master is responsible for seeing that all hatches, openings in the hull, and watertight doors are properly closed tight.

§ 169.829 Emergency lighting and power systems.

(a) Where fitted, the master shall have the emergency lighting and power systems operated and inspected at least once in each week that the vessel is navigated to ensure that the system is in proper operating condition.

(b) The master shall have the internal combustion engine driven emergency generators operated under load for at least 2 hours at least once in each month that the vessel is navigated.

(c) The master shall have the storage batteries for emergency lighting and power systems tested at least once in each 6-month period that the vessel is navigated to demonstrate the ability of the storage battery to supply the emergency loads for the specified period of time.

(d) The date of each test and the condition and performance of the apparatus must be noted in the official logbook.

§ 169.831

§ 169.831 Emergency position indicating radio beacon (EPIRB).

The master shall ensure that—

(a) The EPIRB required in § 169.555 of this subchapter is tested monthly, using the integrated test circuit and output indicator, to determine that it is operative; and

(b) The EPIRB's battery is replaced after the EPIRB is used and before the marked expiration date.

§ 169.833 Fire and boat drills.

(a) When the vessel is operating, the master shall conduct a fire and boat drill each week. The scheduling of drills is at the discretion of the master except that at least one fire and boat drill must be held within 24 hours of leaving a port if more than 25 percent of the ship's company have been replaced at that port.

(b) The fire and boat drill must be conducted as if an actual emergency existed. All persons on board including guests shall report to their respective stations and be prepared to perform the duties specified in the station bill.

(1) Fire pumps must be started and a sufficient number of outlets used to ascertain that the system is in proper working order.

(2) All rescue and safety equipment must be brought from the emergency equipment lockers and the persons designated must demonstrate their ability to use the equipment.

(3) All watertight doors which are in use while the vessel is underway must be operated.

(4) Weather permitting, lifeboat covers and strongbacks must be removed, plugs or caps put in place, boat ladders secured in position, painters led forward and tended, and other life saving equipment prepared for use. The motor and hand-propelling gear of each lifeboat, where fitted, must be operated for at least 5 minutes.

(5) In port, every lifeboat must be swung out, if practicable. The unobstructed lifeboats must be lowered to the water and the ship's company must be exercised in the use of the oars or other means of propulsion. Although all lifeboats may not be used in a particular drill, care must be taken that all lifeboats are given occasional use to ascertain that all lower-

46 CFR Ch. I (10-1-90 Edition)

ing equipment is in proper order and the crew properly trained. The master shall ensure that each lifeboat is lowered to the water at least once every 3 months.

(6) When the vessel is underway, and weather permitting, all lifeboats must be swung out to ascertain that the gear is in proper order.

(7) The person in charge of each lifeboat and liferaft shall have a list of its crew and shall ensure that the persons under his or her command are acquainted with their duties.

(8) Lifeboat equipment must be examined at least once a month to ensure that it is complete.

(9) The master shall ensure that all persons on board fully participate in these drills and that they have been instructed in the proper method of donning and adjusting the personal flotation devices and exposure suits used and informed of the stowage location of these devices.

(c) The master shall have an entry made in the vessel's official logbook relative to each fire and boat drill setting forth the date and hour, length of time of the drill, numbers on the lifeboats swung out and numbers on those lowered, the length of time that motor and hand-propelled lifeboats are operated, the number of lengths of hose used, together with a statement as to the condition of all fire and lifesaving equipment, watertight door mechanisms, valves, etc. An entry must also be made to report the monthly examination of the lifeboat equipment. If in any week the required fire and boat drills are not held or only partial drills are held, an entry must be made stating the circumstances and extend of the drills held.

(d) A copy of these requirements must be framed under glass or other transparent material and posted in a conspicuous place about the vessel.

§ 169.837 Lifeboats, liferafts, and lifefloats.

(a) The master or person in charge shall ensure that the lifeboats, rescue boats, liferafts, and lifefloats, are properly maintained at all times, and that all equipment for the vessel required by the regulations in this sub-

er is provided, maintained, and
ed as indicated or when neces-
and no less frequently than re-
d by paragraph (b) of this sec-

The master shall ensure that:

Each lifeboat has been stripped,
ed and thoroughly overhauled at
once in each year.

The fuel tanks of motor pro-
lifeboats have been emptied and
changed once every twelve
ns.

Each lifefloat has been cleaned
thoroughly overhauled once every
e months.

Each inflatable liferaft has been
ed at an approved facility every
onths or not later than the next
; inspection for certification if
ime since the date of the last
ing does not exceed 15 months.

39 Firefighting equipment.

The master or person in charge
ensure that the vessel's firefight-
equipment is at all times ready for
and that all firefighting equip-
required by the regulations in
subchapter is provided, main-
d, and replaced as indicated.

The master or person in charge
have performed at least once
12 months the tests and inspec-
of all hand portable fire extin-
ers, semiportable fire extinguish-
systems, and fixed fire extinguish-
systems on board as described in
247 of this subchapter. The
er or person in charge shall keep
ds of the tests and inspections
ing the dates when performed,
number and/or other identifica-
of each unit tested and inspected,
he name(s) of the person(s) and/
mpany conducting the tests and
ctions. These records must be
available to the marine inspec-
upon request and must be kept
the period of validity of the ves-
current certificate of inspection.
ucting these tests and inspections
not relieve the master or person
arge of his responsibility to main-
this firefighting equipment in
er condition at all times.

§ 169.841 Logbook entries.

(a) Each vessel subject to the inspec-
tion provisions of this subchapter
must have an official logbook.

(b) The master shall place all entries
required by law or regulation in the
logbook.

(c) A Coast Guard form "Official
Logbook" may be utilized or the owner
may utilize his own format for an offi-
cial logbook. The logs must be kept
available for review by the Coast
Guard for a period of one year after
the date to which the records refer or
for the period of validity of the ves-
sel's current certificate of inspection,
whichever is longer.

(d) All tests, drills, inspections and
notifications required in this subchap-
ter must be entered in the official log-
book.

(e) Prior to getting underway the
master shall enter in the logbook the
name of each sailing school student,
sailing school instructor, and guest on-
board, and the fact that each person
was notified of the applicable safety
standards for sailing school vessels as
required by § 169.857 of this chapter.

§ 169.847 Lookouts.

Nothing in this part exonerates any
master or officer of the watch from
the consequences of any neglect to
keep a proper lookout.

§ 169.849 Posting placards containing in- structions for launching and inflating inflatable liferafts.

Every vessel equipped with inflata-
ble liferafts must have posted in con-
spicuous places readily accessible to
the ship's company and guests ap-
proved placards containing instruc-
tions for launching and inflating in-
flatable liferafts. The number and lo-
cation of such placards for a particular
vessel shall be determined by the Offi-
cer in Charge, Marine Inspection.

§ 169.853 Display of plans.

(a) Each vessel of 100 gross tons and
over must have permanently exhibited
for the guidance of the master, gener-
al arrangement plans for each deck
showing the fire control stations, the
various sections enclosed by fire resist-
ing bulkheads, the sections enclosed

§ 169.855

by fire retarding bulkheads, together with the particulars of the fire alarms, detecting systems, fire extinguishing appliances, means of access to different compartments, ventilation systems and the position of dampers and remote stops.

(b) Plans must clearly show for each deck the boundaries of the watertight compartments, the openings therein with the means of closure and the position of any controls, and the arrangements for the correction of any list due to flooding.

§ 169.855 Pre-underway training.

Prior to getting underway the master shall ensure that each sailing school student and sailing school instructor, who has not previously been instructed, is instructed in the handling of sails, emergency procedures, nautical terms, location and use of lifesaving and firefighting equipment, and the general layout of the vessel.

§ 169.857 Disclosure of safety standards.

(a) This section applies to all sailing school vessels and all promotional literature or advertisements offering

46 CFR Ch. I (10-1-90 Edition)

passage or soliciting sailing school students or instructors for voyages on sailing school vessels.

(b) Each item of promotional literature or advertisement that offers passage or solicits students or instructors of voyages onboard a sailing school vessel must contain the following information:

(1) The name of the vessel;

(2) The country of registry;

(3) A statement detailing the role and responsibility of a sailing school student or instructor; and

(4) A statement that the vessel is inspected and certificated as a sailing school vessel and is not required to meet the same safety standards required of a passenger vessel on a comparable route.

(c) Before getting underway the master shall ensure that each sailing school student, sailing school instructor, and guest, who has not previously been notified, is notified of the specialized nature of sailing school vessels and that the applicable safety requirements for these vessels are not the same as those applied to passenger vessels.

SUBCHAPTER S—SUBDIVISION AND STABILITY**170—STABILITY REQUIREMENTS FOR ALL INSPECTED VESSELS****Subpart A—General Provisions**

- 1 Applicability.
- 3 Right of appeal.
- 5 Vessel alteration or repair.
- 0 Equivalents.
- 5 Incorporation by reference.

Subpart B—Definitions

- 0 General terms.
- 5 Definitions concerning a vessel.

Subpart C—Plan Approval

- 0 Applicability.
- 5 Plans.
- 0 Stability booklet.
- 5 Information required before a stability test.
- 0 Calculations.
- 3 Specific approvals.
- 5 Data submittal for a vessel equipped to lift.
- 8 Submittal of information for the carriage of bulk grain. [Reserved]
- 0 Addresses for submittal of plans and calculations.

Subpart D—Stability Instructions for Operating Personnel

- 5 Applicability.
- 0 Stability booklet.
- 0 Stability letter.
- 5 Operating information for a vessel engaged in lifting.
- 5 Operating information for a vessel with Type III subdivision.

Subpart E—Weather Criterion

- 0 Specific applicability.
- 0 Calculations required.
- 3 Criterion for vessels of unusual proportion and form.

Subpart F—Determination of Lightweight Displacement and Centers of Gravity

- 4 Specific applicability.
- 5 Stability test: general.
- 0 Plans and information required at stability test.
- 5 Stability test preparations.
- 0 Stability test procedure modifications.

Sec.

- 170.200 Estimated lightweight vertical center of gravity.

Subpart G—Special Installations

- 170.235 Fixed ballast.
- 170.245 Form flotation material.

Subpart H—Watertight Bulkhead Doors

- 170.248 Applicability.
- 170.250 Types and classes.
- 170.255 Class 1 doors; permissible locations.
- 170.260 Class 2 doors; permissible locations.
- 170.265 Class 3 doors; required locations.
- 170.270 Door design, operation, installation, and testing.
- 170.275 Special requirements for cargo space watertight doors.

Subpart I—Free Surface

- 170.285 Free surface correction for intact stability calculations.
- 170.290 Free surface correction for damage stability calculations.
- 170.295 Special considerations for free surface of passive roll stabilization tanks.
- 170.300 Special consideration for free surface of spoil in hopper dredge hoppers.

AUTHORITY: 43 U.S.C. 1333; 46 U.S.C. 3306, 3703, 5115; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGD 79-023, 48 FR 51010, Nov. 4, 1983, unless otherwise noted.

Subpart A—General Provisions**§ 170.001 Applicability.**

(a) This subchapter applies to each vessel contracted for on or after January 3, 1984, that is—

- (1) Inspected under another subchapter of this chapter; or
- (2) A foreign vessel that must comply with the requirements in Subchapter 0 of this chapter.

(b) Each vessel contracted for before January 3, 1984 may be constructed in accordance with the regulations in effect at the time. However, any alterations or repairs must be done in accordance with § 170.005.

(c) Certain regulations in this subchapter apply only to limited categories of vessels. Specific applicability

§ 170.003

statements are provided at the beginning of those regulations.

§ 170.003 Right of appeal.

Any person directly affected by a decision or action taken under this subchapter, by or on behalf of the Coast Guard, may appeal therefrom in accordance with subpart 1.03 of this chapter.

[CGD 88-033, 54 FR 50382, Dec. 6, 1989]

§ 170.005 Vessel alteration or repair.

(a) Alterations and repairs to inspected vessels must be done—

(1) Under the direction of the Officer in Charge, Marine Inspection; and

(2) Except as provided in paragraph (b) of this section, in accordance with the regulations in this subchapter, to the extent practicable.

(b) Minor alterations and repairs may be done in accordance with regulations in effect at the time the vessel was contracted for.

§ 170.010 Equivalents.

Substitutions for fittings, equipment, arrangements, calculations, information, or tests required in this subchapter may be approved by the Commandant, the Commanding Officer, U.S. Coast Guard Marine Safety Center (G-MSC), 400 Seventh St., SW., Washington, DC 20590-0001 or the Officer in Charge, Marine Inspection, if the substitution provides an equivalent level of safety.

[CGD 89-025, 54 FR 19572, May 8, 1989]

§ 170.015 Incorporation by reference.

(a) Certain materials are incorporated by reference into this subchapter with the approval of the Director of the Federal Register. The Office of the Federal Register publishes a table, "Material Approved for Incorporation by Reference," which appears in the Finding Aids section of this volume. In that table is found the date of the edition approved, citations to the particular sections of this subchapter where the material is incorporated, addresses where the material is available, and the date of the approval by the Director of the Federal Register. To enforce any edition other than the one listed in the table, notice of the change must

46 CFR Ch. I (10-1-90 Edition)

be published in the FEDERAL REGISTER and the material made available. All approved material is on file at the Office of the Federal Register, Washington, DC 20408 and at the Marine Safety Center, 2100 Second Street SW., Washington, DC 20593-0100.

(b) The materials approved for incorporation by reference in this subchapter are:

Military Specification MIL-P-21929B.
International Maritime Organization (IMO) Resolution A.265 (VIII) dated December 10, 1973.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983 as amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

Subpart B—Definitions

§ 170.050 General terms.

(a) "Commanding Officer, Marine Safety Center (CO, MSC)" means a district commander described in 33 CFR Part 3 whose command includes a merchant marine technical office or an authorized representative of the district commander.

(b) "Commandant" means the Commandant of the Coast Guard or an authorized representative of the Commandant.

(c) "Exposed waters" means waters more than 20 nautical miles (37 kilometers) from the mouth of a harbor of safe refuge and other waters which the Officer in Charge, Marine Inspection determines to present special hazards due to weather or other circumstances.

(d) "Great Lakes" includes both the waters of the Great Lakes and of the St. Lawrence River as far east as a straight line drawn from Cap de Rosiers to West Point, Anticosti Island, and west of a line along the 63rd meridian from Anticosti Island to the north shore of the St. Lawrence River.

(e) "Lakes, Bays, and Sounds" includes the waters of any lake, bay, or sound, except the Great Lakes.

(f) "Oceans" includes the waters of—

- (1) Any ocean;
- (2) The Gulf of Mexico;
- (3) The Caribbean Sea;
- (4) The Gulf of Alaska; and
- (5) Any other waters designated as "oceans" by the Commandant.

"Officer in Charge Marine In-
spection (OCMI)" means an officer of
Coast Guard who commands a
Marine Inspection Zone described in
FR Part 3 or an authorized repre-
sentative of that officer.

"Oil" means oil of any kind or in
any form, and includes but is not lim-
ited to petroleum, fuel oil, sludge, oil
residue, and oil mixed with wastes
other than dredged spoil.

"Partially protected waters"

means—

Waters within 20 nautical miles
(37 kilometers) of the mouth of a
river or of safe refuge, unless deter-
mined by the OCMI to be exposed
waters; and

Those portions of rivers, harbors,
etc., which the OCMI determines
should be sheltered.

"Protected waters" means shel-
tered waters presenting no special haz-
ard, such as most rivers, harbors,
etc.

"Rivers" means any river, canal,
or any other similar body of water des-
ignated by the OCMI.

79-023, 48 FR 51010, Nov. 4, 1983, as
amended by CGD 88-070, 53 FR 34537, Sept.
8]

170.055 Definitions concerning a vessel.

"Auxiliary sailing vessel" means a
vessel capable of being propelled
entirely by mechanical means and by
sailing.

"Barge" means a vessel not
designed with a means of self-propul-
sion.

"Beam" or "B" means the maxi-
mum width of a vessel from—

Outside of planking to outside of
planking on wooden vessels; and

Outside of frame to outside of
frame on all other vessels.

"Bulkhead deck" means the up-
permost deck to which watertight
bulkheads and the watertight shell
are attached.

"Downflooding" means, except as
provided in § 174.035(b), the entry of
water through any opening into the
hull or superstructure of an unda-
maged vessel due to heel, trim, or sub-
sidence of the vessel.

"Downflooding angle" means,
except as specified in §§ 171.055(f),
170(d), 173.095(e), 174.015(b), and

174.035(b), the static angle from the
intersection of the vessel's centerline
and waterline in calm water to the
first opening that cannot be closed wa-
tertight and through which down-
flooding can occur.

(g) "Draft" means the vertical dis-
tance from the molded baseline amid-
ships to the waterline.

(h) "Length" means the distance be-
tween fore and aft points on a vessel.
The following specific terms are used
and correspond to specific fore and aft
points:

(1) "Length between perpendiculars
(LBP)" means the horizontal distance
measured between perpendiculars
taken at the forward-most and after-
most points on the waterline corre-
sponding to the deepest operating
draft.

(2) "Length overall (LOA)" means
the horizontal distance between the
forward-most and after-most points on
the hull.

(3) "Length on the waterline (LWL)"
means the horizontal distance between
the forward-most and after-most
points on a vessel's waterline.

(4) "Length on deck (LOD)" means
the length between the forward-most
and after-most points on a specified
deck measured along the deck, exclud-
ing sheer.

(5) "Load line length (LLL)" has the
same meaning that is provided for the
term "length" in § 42.13-15(a) of this
chapter.

(6) "Mean length" is the average of
the length between perpendiculars
(LBP) and the length on deck (LOD).

(i) "Lightweight" means with fixed
ballast and with machinery liquids at
operating levels but without any
cargo, stores, consumable liquids,
water ballast, or persons and their ef-
fects.

(j) "Main transverse watertight
bulkhead" means a transverse bulk-
head that must be maintained water-
tight in order for the vessel to meet
the damage stability and subdivision
requirements in this subchapter.

(k) "Major conversion", as applied to
Great Lakes bulk carriers, means a
conversion of an existing vessel that
substantially changes the dimensions
or carrying capacity of the vessel or
changes the type of vessel or sub-

§ 170.070

stantially prolongs its life or that otherwise so changes the vessel that it is essentially a new vessel.

(l) "Permeability" is the percentage of the volume of a space that can be occupied by water.

(m) "Sailing vessel" means a vessel propelled only by sails.

(n) "Ship" means a self-propelled vessel.

(o) "Tank vessel" means a vessel that is specially constructed or converted to carry liquid bulk cargo in tanks.

(p) "Tank barge" means a tank vessel not equipped with a means of self-propulsion.

(q) "Tank ship" means a tank vessel propelled by mechanical means or sails.

(r) "Vessel" means any vessel and includes both ships and barges.

(s) "Weather deck" means the uppermost deck exposed to the weather.

(t) "Existing sailing school vessel" means a sailing vessel whose keel was laid prior to (January 9, 1986), which has an application for initial inspection for certification as a sailing school vessel on file with the Coast Guard prior to (January 9, 1987), and whose initial inspection for certification is completed prior to (January 9, 1988).

(u) "New sailing school vessel" means a sailing school vessel which is not an existing sailing school vessel.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 83-005, 51 FR 923, Jan. 9, 1986; 51 FR 3785, Jan. 30, 1986; CGD 80-159, 51 FR 33059, Sept. 18, 1986; 51 FR 35515, Oct. 6, 1986]

Subpart C—Plan Approval

§ 170.070 Applicability.

(a) Except as provided in paragraph (b) of this section, this subpart applies to each vessel.

(b) This subpart does not apply to any of the following vessels unless the stability of the vessel is questioned by the OCMI:

(1) A passenger vessel that—

(i) Is less than 100 gross tons;

(ii) Is less than 65 feet (19.8 meters)

LOD measured over the weather deck; and

(iii) Carries 49 or less passengers.

46 CFR Ch. I (10-1-90 Edition)

(2) A deck cargo barge that complies with the requirements in § 174.020 of this chapter.

(3) A tank vessel that only carries a product listed in § 30.25-1 of this chapter and that is less than 150 gross tons.

(4) A tank barge that—

(i) Operates only in rivers or lakes, bays, and sounds service;

(ii) Does not have to meet 33 CFR Part 157, Subpart B; and

(iii) Only carries a product listed in § 30.25-1 of this chapter.

(5) A sailing school vessel that is an open boat that complies with the requirements in § 173.063(e) of this subchapter.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 83-005, 51 FR 923, Jan. 9, 1986]

§ 170.075 Plans.

(a) Except as provided in paragraph (b) of this section, each applicant for an original certificate of inspection and approval of plans must also submit three copies of each of the following plans:

(1) General arrangement plan of decks, holds, and inner bottoms including inboard and outboard profiles.

(2) Lines.

(3) Curves of form.

(4) Capacity plan showing capacities and vertical, longitudinal, and transverse centers of gravity of stowage spaces and tanks.

(5) Tank sounding tables showing—

(i) Capacities, vertical centers of gravity, and longitudinal centers of gravity in graduated intervals; and

(ii) Free surface data for each tank.

(6) Draft mark locations including longitudinal location and vertical reference points.

(b) Each small passenger vessel that is designed to comply with the alternate intact stability requirements in § 171.030(b)(2) of this subchapter and the simplified method of spacing main transverse watertight bulkheads in § 171.043 of this subchapter does not have to submit the plans required by paragraph (a) of this section.

(Approved by OMB under control numbers 2115-0095, 2115-0114, 2115-0130, 2115-0131, 2130-0186, and 2130-0188)

0.080 Stability booklet.

Before issuing an original certificate of inspection, three copies of the stability booklet required by § 170.110 must be submitted for approval to the Commanding Officer, Marine Safety Center.

(Approved by OMB under control numbers 2115-0095, 2115-0114, 2115-0130, 2115-0131, 2130-0186, and 2130-0188)

D 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

0.085 Information required before a stability test.

A stability test is to be performed, and the stability test procedure that contains the information prescribed in § 170.185(g) must be submitted to the Commanding Officer, Marine Safety Center at least two weeks before the test.

(Approved by OMB under control numbers 2115-0095, 2115-0114, 2115-0130, 2115-0131, 2130-0186, and 2130-0188)

D 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

0.090 Calculations.

(a) Except as provided in § 170.098, the calculations required by this subpart must be submitted with the plans required by § 170.075.

(b) If it is necessary to compute and plot any of the following curves as part of the calculations required in this subchapter, these plots must also be submitted:

- (1) Righting arm or moment curves.
- (2) Heeling arm or moment curves.
- (3) Cross curves of stability.
- (4) Floodable length curves.

(Approved by OMB under control numbers 2115-0095, 2115-0114, 2115-0130, 2115-0131, 2130-0186, and 2130-0188)

0.093 Specific approvals.

Certain rules in this subchapter require specific approval of equipment arrangements by the Commandant, Marine Safety Center, or OCMI. These approval determinations will be made as a part of the plan review process.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

§ 170.095 Data submittal for a vessel equipped to lift.

The following data must be submitted with the plans required by § 170.075 if the vessel is engaged in lifting and is required to comply with Subpart B of Part 173 of this chapter:

- (a) A graph of maximum hook load versus maximum crane radius.
- (b) A table of crane radius versus the maximum distance above the main deck to which the hook load can be raised.
- (c) A table showing maximum vertical and transverse moments at which the crane is to operate.

(Approved by OMB under control numbers 2115-0095, 2115-0114, 2115-0130, 2115-0131, 2130-0186, and 2130-0188)

§ 170.098 Submittal of information for the carriage of bulk grain. [Reserved]

§ 170.100 Addresses for submittal of plans and calculations.

Except as provided in § 170.098, the plans, information, and calculations required by this subpart must be submitted to one of the following:

- (a) The Marine Inspection Office, in the zone where the vessel is to be built or altered.
- (b) Commanding Officer, U.S. Coast Guard Marine Safety Center, (G-MSC), 400 Seventh St., SW., Washington, DC 20590-0001.

(Approved by OMB under control numbers 2115-0095, 2115-0114, 2115-0130, 2115-0131, 2130-0186, and 2130-0188)

[CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 85-048b, 51 FR 15498, Apr. 24, 1986; CGD 89-025, 54 FR 19572, May 8, 1989]

Subpart D—Stability Instructions for Operating Personnel

§ 170.105 Applicability.

(a) Except as provided in paragraph (b) of this section, this subpart applies to each vessel.

(b) This subpart does not apply to any of the following vessels unless the

§ 170.110

stability of the vessel is questioned by the OCMI:

- (1) A passenger vessel that—
 - (i) Is less than 100 gross tons;
 - (ii) Is less than 65 feet (19.8 meters) LOD measured over the weather deck; and
 - (iii) Carries 49 or less passengers.
- (2) A deck cargo barge that complies with the requirements in § 174.020 of this chapter.
- (3) A tank vessel that only carries a product listed in § 30.25-1 of this chapter and that is less than 150 gross tons.
- (4) A tank barge that—
 - (i) Operates only in rivers or lakes, bays, and sounds service;
 - (ii) Does not have to meet 33 CFR Part 157, Subpart B; and
 - (iii) Only carries a product listed in § 30.25-1 of this chapter.
- (5) A sailing school vessel that is an open boat that complies with the requirements in § 173.063(e) of this subchapter.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 83-005, 51 FR 923, Jan. 9, 1986]

§ 170.110 Stability booklet.

(a) Except as provided in paragraph (e) of this section, a stability booklet must be prepared for each vessel, except for mobile offshore drilling units subject to the operating manual requirements of § 109.121 of this chapter.

(b) Each stability booklet must be approved by the Commanding Officer, Marine Safety Center.

(c) Each stability booklet must contain sufficient information to enable the master to operate the vessel in compliance with the applicable regulations in this subchapter.

(d) The format of the stability booklet and the information included will vary dependent on the vessel type and operation. In developing the stability booklet, consideration must be given to including the following information:

- (1) A general description of the vessel, including lightweight data.
- (2) Instructions on the use of the booklet.
- (3) General arrangement plans showing watertight compartments,

closures, vents, downflooding angles and allowable deck loadings.

(4) Hydrostatic curves or tables.

(5) Capacity plan showing capacities and vertical, longitudinal, and transverse centers of gravity of stowage spaces and tanks.

(6) Tank sounding tables showing capacities, vertical centers of gravity and longitudinal centers of gravity in graduated intervals and showing free surface data for each tank.

(7) Information on loading restrictions, such as a maximum KG or minimum GM curve that can be used to determine compliance with applicable intact and damage stability criteria.

(8) Examples of loading conditions.

(9) A rapid and simple means for evaluating other loading conditions.

(10) A brief description of the stability calculations done including assumptions.

(11) General precautions for preventing unintentional flooding.

(12) A table of contents and index for the booklet.

(13) Each ship condition which, if damage occurs, may require crossflooding for survival and information concerning the use of any special cross-flooding fittings.

(14) The amount and location of fixed ballast.

(15) Any other necessary guidance for the safe operation of the vessel under normal and emergency conditions.

(16) For each self-propelled hopper dredge with a working freeboard, the maximum specific gravity allowed for dredge spoil.

(e) A stability booklet is not required if sufficient information to enable the master to operate the vessel in compliance with the applicable regulations in this subchapter can be placed on the Certificate of Inspection, Load Line Certificate, or in the stability letter required in § 170.120.

(Approved by OMB under control numbers 2115-0095, 2115-0114, 2115-0130, 2115-0131, 2130-0186, and 2130-0188)

[CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 83-071, 52 FR 6979, Mar. 6, 1987; CGD 88-070, 53 FR 34537, Sept. 7, 1988; CGD 76-080, 54 FR 36977, Sept. 6, 1989]

170.120 Stability letter.

(a) Except as provided in paragraph (b) of this section, each vessel must have a stability letter issued by the Coast Guard before the vessel is placed in service. This letter sets forth conditions of operation.

(b) A stability letter is not required if the information can be placed on the Certificate of Inspection or the Load Line Certificate.

Approved by OMB under control numbers 15-0095, 2115-0114, 2115-0130, 2115-0131, 2130-0186, and 2130-0188)

170.125 Operating information for a vessel engaged in lifting.

In addition to the information required in 170.110, the following information must be included in the stability booklet of a vessel that is required to comply with § 173.005 of this subchapter:

(a) *Non-counterballasted vessel.* If a vessel is not counterballasted, stability information setting forth hook load limits corresponding to boom radii based on the intact stability criterion of § 173.020 must be provided.

(b) *Counterballasted vessel.* If a vessel is counterballasted with water, the following information must be provided:

(1) Instructions on the effect of the free surface of the counterballast water.

(2) Instructions on the amounts of counterballast needed to compensate for hook load heeling moments.

(3) If a vessel has fixed counterballast, a table of draft versus maximum vertical moment of deck cargo and hook load combined.

(4) If a vessel has variable counterballast, a table of draft versus maximum vertical moment of deck cargo and hook load combined for each counterballasted condition.

Approved by OMB under control numbers 15-0095, 2115-0114, 2115-0130, 2115-0131, 2130-0186, and 2130-0188)

170.135 Operating information for a vessel with Type III subdivision.

(a) In addition to the information required in § 170.110, the stability booklet of a passenger vessel with Type III subdivision must contain the information

required by Regulation 8(b) of IMO Resolution A.265 (VIII).

(b) International Maritime Organization Resolution A.265 (VIII) is incorporated by reference into this part.

(c) As used in IMO Resolution A.265 (VIII), "Administration" means the Commandant, U. S. Coast Guard.

(Approved by OMB under control numbers 2115-0095, 2115-0114, 2115-0130, 2115-0131, 2130-0186, and 2130-0188)

Subpart E—Weather Criterion

§ 170.160 Specific applicability

(a) Except as provided in paragraphs (b) and (c) of this section, this subpart applies to each vessel.

(b) This subpart does not apply to any of the following vessels unless the stability of the vessel is questioned by the OCMI:

- (1) A passenger vessel that—
 - (i) Is less than 100 gross tons;
 - (ii) Is less than 65 feet (19.8 meters) LOD measured over the weather deck; and
 - (iii) Carries 49 or less passengers.

(2) A deck cargo barge that complies with the requirements in § 174.020 of this chapter.

(3) A tank vessel that only carries a product listed in § 30.25-1 of this chapter and that is—

- (i) Less than 150 gross tons; or
- (ii) A tank barge that operates only in river or lakes, bays, and sounds in service.

(4) A sailing school vessel that is an open boat that complies with the requirements in § 173.063(e) of this subchapter.

(c) This subpart does not apply to the following vessels:

(1) A tank barge that carries a product listed in Table 151.01-10(b) of this chapter.

(2) A mobile offshore drilling unit.

(3) A vessel that performs the test required by § 171.030(c) of this subchapter.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 83-005, 51 FR 923, Jan. 9, 1986]

§ 170.170 Calculations required.

(a) Each vessel must be shown by design calculations to have a metacen-

§ 170.173

tric height (GM) that is equal to or greater than the following in each condition of loading and operation:

$$GM > \frac{PAH}{W \tan (T)}$$

Where—

P=.005+(L/14,200)³ tons/ft³ . . . for ocean service, Great Lakes winter service, or service on exposed waters.

P=.055+(L/1309)³ metric tons/m³ . . . for ocean service, Great Lakes winter service, or service on exposed waters.

P=.0033+(L/14,200)³ tons/ft³ . . . for Great Lakes summer service or service on partially protected waters.

P=.036+(L/1309)³ metric tons/m³ . . . for Great Lakes summer service or service on partially protected waters.

P=.0025+(L/14,200)³ tons/ft³ . . . for service on protected waters.

P=.028+(L/1309)³ metric tons/m³ . . . for service on protected waters.

L=LBP in feet (meters).

A=projected lateral area in square feet (square meters) of the portion of the vessel and deck cargo above the waterline.

H=the vertical distance in feet (meters) from the center of A to the center of the underwater lateral area or approximately to the one-half draft point.

W=displacement in long (metric) tons.

T=14 degrees or the angle of heel at which one-half the freeboard to the deck edge is immersed, whichever is less.

(b) If approved by the Commanding Officer, Marine Safety Center, a larger value of T may be used for a vessel with a discontinuous weather deck or abnormal sheer.

(c) When doing the calculations required by paragraph (a) of this section for a sailing vessel or auxiliary sailing vessel, the vessel must be assumed—

(1) To be under bare poles; or

(2) If the vessel has no auxiliary propulsion, to have storm sails set and trimmed flat.

(d) The criterion specified in this section is generally limited in application to flush deck, mechanically powered vessels of ordinary proportions and form that carry cargo below the main deck. On other types of vessels, the Commanding Officer, Marine Safety Center requires calculations in addition to those in paragraph (a) of this section. On a mechanically powered vessel under 328 feet (100 meters)

46 CFR Ch. I (10-1-90 Edition)

in length, other than a tugboat or a towboat, the requirements in § 170.173 are applied.

[48 FR 51010, Nov. 4, 1983; 49 FR 37364, Sept. 24, 1984, as amended by CGD 82-070, 53 FR 34537, Sept. 7, 1988]

§ 170.173 Criterion for vessels of unusual proportion and form.

(a) If required by the Commander (mmt), each mechanically powered vessel less than 328 feet (100 meters) LLL, other than a tugboat or towboat, must be shown by design calculations to comply with—

(1) Paragraph (b) or (c) of this section if the maximum righting arm occurs at an angle of heel less than or equal to 30 degrees; or

(2) Paragraph (b) of this section if the maximum righting arm occurs at an angle of heel greater than 30 degrees.

(b) Each vessel must have—

(1) An initial metacentric height (GM) of at least 0.49 feet (0.15 meters);

(2) A maximum righting arm (GZ) of at least 0.66 feet (0.20 meters) at an angle of heel equal to or greater than 30 degrees;

(3) A maximum righting arm that occurs at an angle of heel not less than 25 degrees;

(4) An area under each righting arm curve of at least 10.3 foot-degrees (3.15 meter-degrees) up to an angle of heel of 30 degrees;

(5) An area under each righting arm curve of at least 16.9 foot-degrees (5.15 meter-degrees) up to an angle of heel of 40 degrees or the downflooding angle, whichever is less; and

(6) An area under each righting arm curve between the angles of 30 degrees and 40 degrees, or between 30 degrees and the downflooding angle if this angle is less than 40 degrees, of not less than 5.6 foot-degrees (1.72 meter-degrees).

(c) Each vessel must have—

(1) An initial metacentric height (GM) of at least 0.49 feet (0.15 meters);

(2) A maximum righting arm that occurs at an angle of heel not less than 15 degrees;

- (c) An area under each righting arm curve of at least 16.9 foot-degrees (5.15 meter-degrees) up to an angle of heel of 40 degrees or the downflooding angle, whichever is less;
- (d) An area under each righting arm curve between the angles of 30 degrees and 40 degrees, or between 30 degrees and the downflooding angle if this angle is less than 40 degrees, of not less than 5.6 foot-degrees (1.72 meter-degrees); and
- (e) An area under each righting arm curve up to the angle of maximum righting arm of not less than the area determined by the following equation:

$$A = 10.3 + 0.187 (30 - Y) \text{ foot-degrees}$$

$$A = 3.15 + 0.057 (30 - Y) \text{ meter-degrees}$$

where—
A = area in foot-degrees (meter-degrees).
Y = angle of maximum righting arm, degrees.

- (f) For the purpose of demonstrating compliance with paragraphs (b) and (c) of this section, at each angle of heel a vessel's righting arm is calculated after the vessel is permitted to trim until the trimming moment is zero.

Part F—Determination of Lightweight Displacement and Centers of Gravity

170.174 Specific applicability.

This subpart applies to each vessel for which the lightweight displacement and centers of gravity must be determined in order to do the calculations required in this subchapter.

170.175 Stability test: General.

- (a) Except as provided in paragraphs (b) and (d) of this section and in 170.200, the owner of a vessel must conduct a stability test of the vessel and calculate its vertical and longitudinal centers of gravity and its lightweight displacement.
- (b) An authorized Coast Guard representative must be present at each stability test conducted under this section.
- (c) The stability test may be dispensed with, or a deadweight survey may be substituted for the stability test, if the Coast Guard has a record

of, or is provided with, the approved results of a stability test of a sister vessel.

- (d) The stability test of a vessel may be dispensed with if the Coast Guard determines that an accurate estimate of the vessel's lightweight characteristics can be made and that locating the precise position of the vessel's vertical center of gravity is not necessary to insure that the vessel has adequate stability in all probable loading conditions.

§ 170.180 Plans and information required at the stability test.

The owner of a vessel must provide the following Coast Guard approved plans and information to the authorized Coast Guard representative at the time of the stability test:

- (a) Lines.
- (b) Curves of form.
- (c) Capacity plans showing capacities and vertical and longitudinal centers of gravity of stowage spaces and tanks.
- (d) Tank sounding tables.
- (e) Draft mark locations.
- (f) General arrangement plan of decks, holds, and inner bottoms.
- (g) Inboard and outboard profiles.
- (h) The stability test procedure described in § 170.185(g).

(Approved by the Office of Management and Budget under control numbers 2115-0095, 2115-0114, 2115-0130, 2115-0131, 2130-0186, and 2130-0188)

§ 170.185 Stability test preparations.

The following preparations must be made before conducting a stability test:

- (a) The vessel must be as complete as practicable at the time of the test.
- (b) Each tank must be empty and dry, except that a tank may be partially filled or full if the Commanding Officer, Marine Safety Center determines that empty and dry tanks are impracticable and that the effect of filling or partial filling on the location of the center of gravity and on the displacement can be accurately determined.
- (c) All dunnage, tools, and other items extraneous to the vessel must be removed.

§ 170.190

(d) The water depth at the mooring site must provide ample clearance against grounding.

(e) Each mooring line must be arranged so that it does not interfere with the inclination of the unit during the test.

(f) The draft and axis of rotation selected for testing a mobile offshore drilling unit must be those that result in acceptable accuracy in calculating the center of gravity and displacement of the unit.

(g) The stability test procedure required by § 170.085 must include the following:

(1) Identification of the vessel to be tested.

(2) Date and location of the test.

(3) Inclining weight data.

(4) Pendulum locations and lengths.

(5) Approximate draft and trim of the vessel.

(6) Condition of each tank.

(7) Estimated items to be installed, removed, or relocated after the test, including the weight and location of each item.

(8) Schedule of events.

(9) Person or persons responsible for conducting the test.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

§ 170.190 Stability test procedure modifications.

The authorized Coast Guard representative present at a stability test may allow a deviation from the requirements of §§ 170.180 and 170.185 if the representative determines that the deviation would not decrease the accuracy of the test results.

§ 170.200 Estimated lightweight vertical center of gravity.

(a) Each tank vessel that does not carry a material listed in either Table 1 of Part 153 or Table 4 of Part 154 of this chapter may comply with this section in lieu of § 170.175 if it—

(1) Is 150 gross tons or greater;

(2) Is of ordinary proportions and form;

(3) Has a flush weather deck, one or more longitudinal bulkheads, and no independent tanks; and

46 CFR Ch. I (10-1-90 Edition)

(4) Is designed not to carry cargo above the freeboard deck.

(b) When doing the calculations required by §§ 170.170 and 172.065, the vertical center of gravity of a tank vessel in the lightweight condition must be assumed to be equal to the following percentage of the molded depth of the vessel measured from the keel amidship:

(1) For a tank ship—70%.

(2) For a tank barge—60%.

(c) As used in this section, "molded depth" has the same meaning that is provided for the term in § 42.13-15(e) of this chapter.

Subpart G—Special Installations

§ 170.235 Fixed ballast.

(a) Fixed ballast, if used, must be—

(1) Installed under the supervision of the OCMI; and

(2) Stowed in a manner that prevents shifting of position.

(b) Fixed ballast may not be removed from a vessel or relocated unless approved by the Commanding Officer, Marine Safety Center. However, ballast may be temporarily moved for vessel examination or repair if done under the supervision of the OCMI.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

§ 170.245 Foam flotation material.

(a) Installation of foam must be approved by the OCMI.

(b) If foam is used to comply with § 171.070(d), § 171.095(c), or § 173.063(e) of this subchapter, the following applies:

(1) Foam may be installed only in void spaces that are free of ignition sources.

(2) The foam must comply with MIL-P-21929B including the requirements for fire resistance.

(3) A submergence test must be conducted for a period of at least 7 days to demonstrate whether the foam has adequate strength to withstand a hydrostatic head equivalent to that which would be imposed if the vessel were submerged to its margin line.

(4) The effective buoyancy at the end of the submergence test must be used as the buoyancy credit; however, in no case will a credit greater than 55 lbs per cubic foot (881 kilograms per cubic meter) be allowed.

(5) The structure enclosing the foam must be strong enough to accommodate the buoyancy of the foam.

(6) Piping and cables must not pass through foamed spaces unless they are within piping and cable trunks accessible from both ends.

(7) Sample specimens must be prepared during installation and the density of the installed foam must be determined.

(8) Foam may be installed adjacent to fuel tanks if the boundary between the tank and space has double continuous fillet welds.

(9) MIL-P-21929B is incorporated by reference into this part.

(10) The results of all tests and calculations must be submitted to the OCMI.

(11) Blocked foam must—

(i) Be used in each area that may be exposed to water; and

(ii) Have a protective cover approved by the OCMI.

CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 83-005, 51 FR 923, Jan. 9, 1986]

Subpart H—Watertight Bulkhead Doors

170.248 Applicability.

(a) Except as provided in paragraph (b) or paragraph (c) of this section, this subpart applies to vessels with watertight doors in bulkheads that have been made watertight to comply with the flooding or damage stability regulations in this subchapter.

(b) A watertight door on a MODU must comply with § 174.100 of this subchapter.

(c) A watertight door on a self-propelled hopper dredge with a working freeboard must comply with § 174.335 of this subchapter.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 76-080, 54 FR 36977, Sept. 3, 1989]

§ 170.250 Types and classes.

(a) Watertight doors, except doors between cargo spaces, are classed as follows:

(1) Class 1—Hinged door.

(2) Class 2—Sliding door, operated by hand gear only.

(3) Class 3—Sliding door, operated by power and by hand gear.

(b) The following types of watertight doors are not permitted:

(1) A plate door secured only by bolts; and

(2) A door required to be closed by dropping or by the action of dropping weights.

(c) Whenever a door of a particular class is prescribed by these regulations, a door of a class bearing a higher number may be used.

§ 170.255 Class 1 doors; permissible locations.

(a) Except as provided in paragraphs (b) and (c) of this section, Class 1 doors within passenger, crew, and working spaces are permitted only above a deck, the molded line of which, at its lowest point at side, is at least 7 feet (2.14 meters) above the deepest load line.

(b) Class 1 doors are permitted within passenger, crew, and working spaces, wherever located, if—

(1) In the judgment of the OCMI, the door is in a location where it will be closed at all times except when actually in use; and

(2) The vessel is less than 150 gross tons and will not proceed more than 20 nautical miles (37 kilometers) from shore; or

(3) The vessel is in rivers or lakes, bays, and sounds service.

(c) Class 1 doors are permitted in any location on a vessel that—

(1) Is less than 100 gross tons; and

(2) Will operate only in the offshore oil industry trade.

(d) Quick-acting Class 1 doors are permitted in any location on a vessel that operates on the Great Lakes and is required to meet the damage stability standards of Subpart H of Part 172 of this chapter.

(e) For vessels required to meet the damage stability standards of Subpart H of this chapter, when Class 1 doors

§ 170.260

are installed below a deck the molded line of which at its lowest point at side is less than 7 feet (2.14 meters) above the deepest load line, an indicator light for each door which warns when the door is open must be installed on the bridge.

[CGD 79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 80-159, 51 FR 33059, Sept. 18, 1986]

§ 170.260 Class 2 doors; permissible locations.

(a) Except as provided in paragraphs (b) and (c) of this section, a Class 2 door is permitted only if—

(1) Its sill is above the deepest load line; and

(2) It is not a door described in § 170.265(d).

(b) If passenger spaces are located below the bulkhead deck, Class 2 doors with sills below the deepest load line may be used if—

(1) The number of watertight doors located below the deepest load line that are used intermittently during operation of the vessel does not exceed two; and;

(2) The doors provide access to or are within spaces containing machinery.

(c) If no passenger spaces are located below the bulkhead deck, Class 2 doors may be used if the number of watertight doors located below the deepest load line that are used intermittently during operation of the vessel does not exceed five.

(d) In determining whether Class 2 doors are allowed under paragraph (c) of this section, the watertight doors at the entrance to shaft tunnels need not be counted. If Class 2 doors are allowed under paragraph (c) of this section, the doors at the entrance to shaft tunnels may also be Class 2.

§ 170.265 Class 3 doors; required locations.

The following doors must always be Class 3:

(a) Doors in all locations not addressed in §§ 170.255 and 170.260.

(b) Doors between coal bunkers below the bulkhead deck that must be opened at sea.

(c) Doors into trunkways that pass through more than one main trans-

46 CFR Ch. I (10-1-90 Edition)

verse watertight bulkhead if the door sills are less than 2.14 meters above the deepest load line.

(d) Doors below a deck, the molded line of which, at its lowest point at side, is not at least 7 feet (2.14 meters) above the deepest load line if—

(1) The vessel is engaged on a short international voyage as defined in § 171.010 of this subchapter; and

(2) The vessel is required by § 171.065 of this subchapter to have a factor of subdivision of 0.05 or less.

§ 170.270 Door design, operation, installation, and testing.

(a) Each Class 1 door must have a quick action closing device operative from both sides of the door.

(b) Each Class 1 door on a vessel in ocean service must be designed to withstand a head of water equivalent to the depth from the sill of the door to the margin line but in no case less than 10 feet (3.05 meters).

(c) Each Class 2 and Class 3 door must be designed, tested, and installed in accordance with Subpart 163.001 of Subchapter Q (Specifications) of this chapter.

(d) For each watertight door, an indicator must be installed in the pilot-house and at each other vessel operating station from which the door is not visible. The indicator must show whether the door is open or closed.

§ 170.275 Special requirements for cargo space watertight doors.

(a) A door between cargo spaces—

(1) Must not be designed for remote operation;

(2) Must be located as high as practicable; and

(3) Must be located as far inboard of the side shell as practicable but in no case closer to the side shell than one-fifth of the beam of the vessel where the beam is measured at right angles to the centerline of the vessel at the level of the deepest load line.

(b) If the door is accessible while the ship is in operation, it must have installed a lock or other device that prevents unauthorized opening.

(c) Before installing a watertight door in a cargo space, approval must

obtained from the Commanding Officer, Marine Safety Center.

79-023, 48 FR 51010, Nov. 4, 1983, as amended by CGD 88-070, 53 FR 34537, Sept. 1988

Subpart I—Free Surface

285 Free surface correction for intact stability calculations.

When doing the intact stability calculations required by this subchapter, the virtual increase in the vessel's vertical center of gravity due to liquids in tanks must be determined by calculating—

For each type of consumable liquid, the maximum free surface effect of at least one transverse pair of tanks or a single centerline tank;

The maximum free surface effect of each partially filled tank containing consumable liquids.

For the purpose of paragraph (b) of this section, the tank or combination of tanks selected must be the one having the greatest free surface effect.

290 Free surface correction for damage stability calculations.

When doing the damage stability calculations required by this subchapter, the virtual increase in the vessel's vertical center of gravity due to liquids in tanks must be determined by calculating—

For each type of consumable liquid, the free surface effect of at least one transverse pair of wing tanks or a single centerline tank; and

The free surface effect of each partially filled tank containing other consumable liquids.

For the purpose of paragraph (b) of this section, the tank or combination of tanks selected must be the one having the greatest free surface effect.

combination of tanks selected must be those having the greatest free surface effect.

(c) When doing the calculations in paragraph (a) of this section, the free surface effect of a liquid in a tank must be determined by—

(1) Assuming the vessel is heeled five degrees from the vertical; or

(2) Calculating the shift of the center of gravity of the liquid in the tank by the moment of transference method.

§ 170.295 Special consideration for free surface of passive roll stabilization tanks.

(a) The virtual increase in the vertical center of gravity due to a liquid in a roll stabilization tank may be calculated in accordance with paragraph (b) of this section if—

(1) The virtual increase in the vertical center of gravity of the vessel is calculated in accordance with § 170.285(a); and

(2) The slack surface in the roll stabilization tank is reduced during vessel motions because of the shape of the tank or the amount of liquid in the tank.

(b) The virtual rise in the vertical center of gravity calculated in accordance with § 170.285(a) for a stabilization tank may be reduced in accordance with the following equation:

$$E.F.S. = (K \times F.F.S.)$$

where—

E.F.S. = the effective free surface.

F.F.S. = the full free surface calculated in accordance with § 170.285(a).

K = the reduction factor calculated in accordance with paragraph (c) of this section.

§ 170.295

46 CFR Ch. I (10-1-90 Edition)

(c) The factor (K) must be calculated as follows:

(1) Plot $(I/d)\tan T$ on Graph 170.295 where—

(i) (I) is the moment of inertia of the free surface in the roll tank;

(ii) (d) is the density of the liquid in the roll tank; and

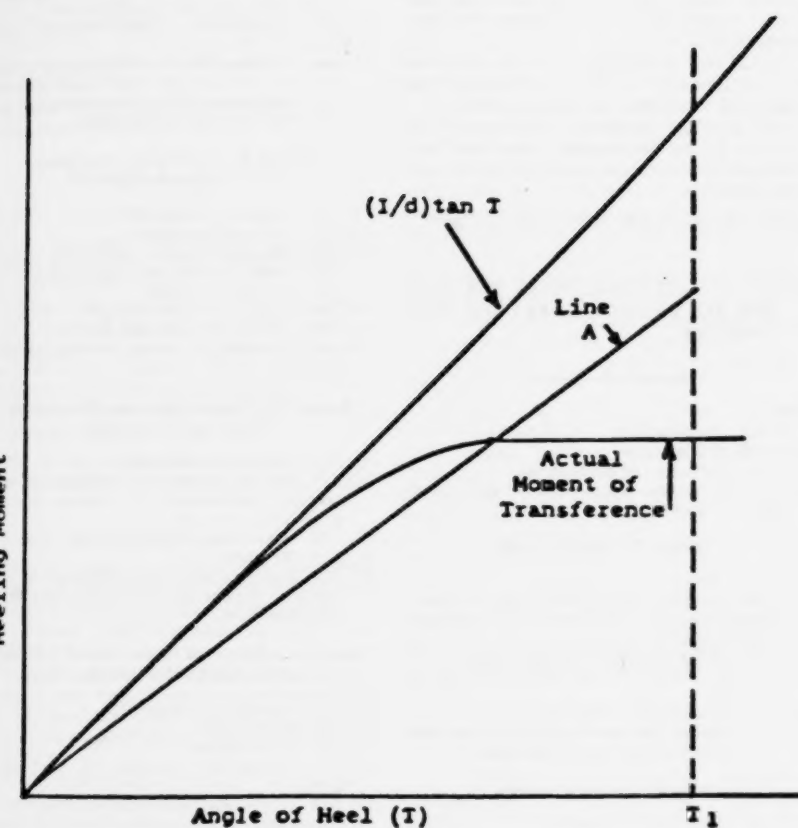
(iii) (T) is the angle of heel.

(2) Plot the moments of transference of the liquid in the roll tank on Graph 170.295.

(3) Construct a line A on Graph 170.295 so that the area under line A

between $T = 0$ and the angle at which the deck edge is immersed or 28 degrees, whichever is smaller, is equal to the area under the curve of actual moments of transference between the same angles.

(4) The factor (K) is calculated by determining the ratio of the ordinate of line A to the ordinate of the curve of $(I/d)\tan T$, both measured at the angle at which the deck edge is immersed or 28 degrees, whichever is smaller.

GRAPH 170.295Special Free Surface Correction
for
Stabilization Tanks

T_1 = the angle at which the deck edge is immersed or 28 degrees, whichever is smaller.

§ 170.300

§ 170.300 Special consideration for free surface of spoil in hopper dredge hoppers.

The calculations required by this subchapter for each self-propelled hopper dredge must include—

(a) The free surface effect of consumable liquids and the free surface effect of the dredged spoil in the hoppers; and

(b) Either of the following assumptions when performing the calculations required by § 174.310(b) of this chapter:

(1) If the dredged spoil is assumed to be jettisoned, the free surface of the dredged spoil may be disregarded.

(2) If the dredged spoil is not assumed to be jettisoned, the free surface of the dredged spoil must be calculated.

[CGD 76-080, 54 FR 36977, Sept. 6, 1989]

PART 171—SPECIAL RULES PERTAINING TO VESSELS CARRYING PASSENGERS

Subpart A—General

Sec.

- 171.001 Applicability.
- 171.010 Definitions.
- 171.015 Location of margin line.
- 171.017 One and two compartment standards of flooding.

Subpart B—Small Vessels

- 171.020 Specific applicability.
- 171.030 Intact stability requirements for a mechanically propelled or a nonself-propelled vessel.
- 171.035 Intact stability requirements for a sailing vessel or an auxiliary sailing vessel.
- 171.040 Watertight subdivision.
- 171.043 Simplified method of spacing main transverse watertight bulkheads.

Subpart C—Large Vessels

- 171.045 Specific applicability.
- 171.050 Intact stability requirements for a mechanically propelled or a nonself-propelled vessel.
- 171.055 Intact stability requirements for a monohull sailing vessel or a monohull auxiliary sailing vessel.
- 171.057 Intact stability requirements for a sailing catamaran.
- 171.060 Watertight subdivision: general.

46 CFR Ch. I (10-1-90 Edition)

Sec.

- 171.065 Subdivision requirements—Type I.
- 171.066 Calculation of permeability for Type I subdivision.
- 171.067 Treatment of stepped and recessed bulkheads in Type I subdivision.
- 171.068 Special considerations for Type I subdivision for vessels on short international voyages.
- 171.070 Subdivision requirements—Type II.
- 171.072 Calculation of permeability for Type II subdivision.
- 171.073 Treatment of stepped and recessed bulkheads in Type II subdivision.
- 171.075 Subdivision requirements—Type III.
- 171.080 Damage stability standards for vessels with Type I or Type II subdivision.
- 171.082 Damage stability standards for vessels with Type III subdivision.

Subpart D—Additional Subdivision Requirements

- 171.085 Collision bulkhead.
- 171.090 Aft peak bulkhead.
- 171.095 Machinery space bulkhead.
- 171.100 Shaft tunnels and stern tubes.
- 171.105 Double bottoms.
- 171.106 Wells in double bottoms.
- 171.108 Manholes in double bottoms.
- 171.109 Watertight floors in double bottoms.

Subpart E—Penetrations and Openings in Watertight Bulkheads

- 171.110 Specific applicability.
- 171.111 Penetrations and openings in watertight bulkheads in vessels of 100 gross tons or more.
- 171.112 Watertight door openings.
- 171.113 Trunks.
- 171.114 Penetrations and openings in watertight bulkheads in a vessel less than 100 gross tons.

Subpart F—Openings in the Side of a Vessel Below the Bulkhead or Weather Deck

- 171.115 Specific applicability.
- 171.116 Port lights.
- 171.117 Dead covers.
- 171.118 Automatic ventilators and side ports.
- 171.119 Openings below the weather deck in the side of a vessel less than 100 gross tons.

Subpart G—Watertight Integrity Above the Margin Line

- 171.120 Specific applicability.
- 171.122 Watertight integrity above the margin line in a vessel of 100 gross tons or more.

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71.124 Watertight integrity above the margin line in a vessel less than 100 gross tons.

Subpart H—Drainage of Weather Decks

71.130 Specific applicability.
71.135 Weather deck drainage on a vessel of 100 gross tons or more.
71.140 Drainage of a flush deck vessel.
71.145 Drainage of a vessel with a cockpit.
71.150 Drainage of a vessel with a well deck.
71.155 Drainage of an open boat.

AUTHORITY: 46 U.S.C. 3306, 5115; E.O. 2234, 45 FR 58801, 3 CFR, 1980 Comp., p. 77; 49 CFR 1.46.

SOURCE: CGD 79-023, 48 FR 51017, Nov. 4, 1983, unless otherwise noted.

Subpart A—General

171.001 Applicability.

(a) This part applies to passenger vessels inspected under Subchapter T of this chapter.

(b) Specific sections of this part also apply to nautical school ships, sailing school vessels, oceanographic vessels, and nuclear vessels. The applicable sections are listed in Subparts C and D of Part 173 and Subpart D of Part 174 of this subchapter.

CGD 79-023, 48 FR 51017, Nov. 4, 1983, as amended by CGD 83-005, 51 FR 923, Jan. 9, 1986.

171.010 Definitions.

(a) "Cockpit" means an exposed recess in the weather deck extending no more than one-half of the length of the vessel (LMD) measured over the weather deck.

(b) "Deepest subdivision load line" means the waterline that corresponds to the deepest draft permitted by the applicable subdivision requirements in this part.

(c) "Equivalent plane bulkhead" means a bulkhead that is—

(1) Used in lieu of a recessed or stepped bulkhead when doing the subdivision calculations required in this part; and

(2) Located as shown in Figure 171.010(a).

(d) "Ferry" means a vessel that—

(1) Operates in rivers or lakes, bays, and sounds service only;

(2) Has provisions only for deck passengers or vehicles, or both;

(3) Operates on a frequent schedule between two points over the most direct water route; and

(4) Offers a public service of a type normally attributed to a bridge or tunnel.

(e) "Floodable length" means the length of a shell to shell segment of the vessel that, when flooded, will sink and trim the vessel until the margin line is tangent to the waterline.

(f) "Flush deck" means a continuous weather deck located at the uppermost sheer line of the hull.

(g) "International voyage" has the same meaning provided for the term in § 70.05-10 of this chapter.

(h) "Machinery space" means, unless otherwise prescribed by the Commandant for unusual arrangements, the space extending from the molded base line to the margin line and between the main transverse watertight bulkheads bounding the following spaces:

(1) Each space containing main and auxiliary propelling machinery.

(2) Each space containing propulsion boilers.

(3) Each space containing permanent coal bunkers.

(i) "Open boat" means a vessel not protected from entry of water by means of a complete deck, or by a combination of a partial weather deck and superstructure which is seaworthy for the waters upon which the vessel operates.

(j) "Passenger space" means a space which is provided for the accommodation and use of passengers, other than a baggage, store, provision or mail room.

(k) "Recessed bulkhead" means a bulkhead that is recessed as shown by bulkhead B in Figure 171.010(b).

(l) "Short international voyage" means an international voyage where—

(1) A vessel is not more than 200 nautical miles (370 kilometers) from a port or place in which the passengers and crew could be placed in safety; and

(2) The total distance between the last port of call in the country in which the voyage began and the final

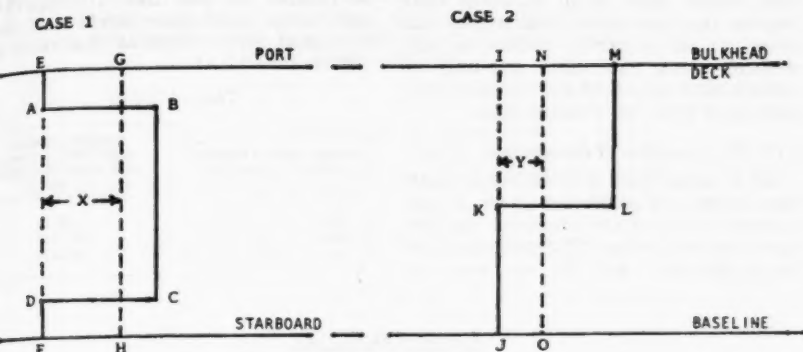
§ 171.010

46 CFR Ch. I (10-1-90 Edition)

port of destination does not exceed
600 nautical miles (1111 kilometers).

(m) "Stepped bulkhead" means a
bulkhead that is stepped as shown by
bulkhead A in Figure 171.010(b).

Figure 171.010(a)



Case 1: $X = V/A$

where-

X = Distance between EF and the equivalent plane bulkhead GH.

V = Volume of the space directly below ABCD and extending to the shell.

A = Sectional area midway between EF and GH.

Case 2: $Y = V/A$

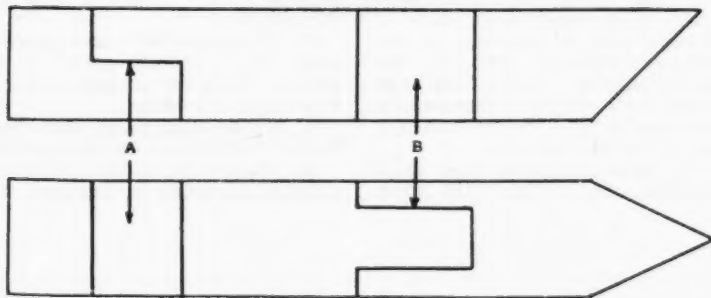
where-

Y = Distance between IJ and the equivalent plane bulkhead NO.

V = Volume of the space directly below IKLM and extending to the shell.

A = Sectional area midway between IJ and NO.

Figure 171.010(b)



§ 171.015

46 CFR Ch. I (10-1-90 Edition)

(n) "Well deck" means a weather deck fitted with solid bulwarks that impede the drainage of water over the sides or an exposed recess in the weather deck extending one-half or more of the length of the vessel (LOD) measured over the weather deck.

inches (30.5 cm), the margin line must be located no less than 3 inches (7.6 cm) below the upper surface of the bulkhead deck at side as illustrated in Figure 171.015(a).

TABLE 171.015

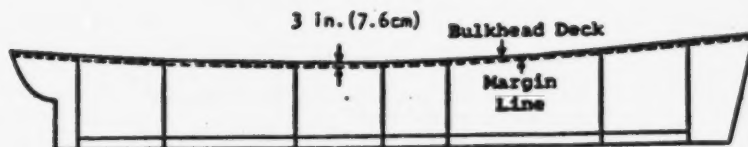
Average value of sheer at FP and AP in inches (cm)	Required position of margin line below top of deck amidships in inches (cm)
12 (30.5).....	3 (7.6)
6 (15.2).....	6 (15.2)
0.....	9 (22.8)

§ 171.015 Location of margin line.

(a) *A vessel with a continuous bulkhead deck and sufficient sheer.* If the average value of the sheer at the forward perpendicular (FP) and the after perpendicular (AP) is at least 12

Figure 171.015(a)

Margin Line for a Vessel With a Continuous Bulkhead Deck and With an Average Value of Sheer at the FP and AP of at Least 12 Inches (30.5 cm)



(b) *A vessel with a continuous bulkhead deck and insufficient sheer.* If the average value of the sheer at the forward perpendicular (FP) and the after perpendicular (AP) is less than 12 inches (30.5 cm), the margin line must be a parabolic curve with the following characteristics:

surface of the bulkhead deck at the FP and AP.

(2) The parabolic curve must be at least the distance given in Table 171.015 below the surface of the bulkhead deck amidships.

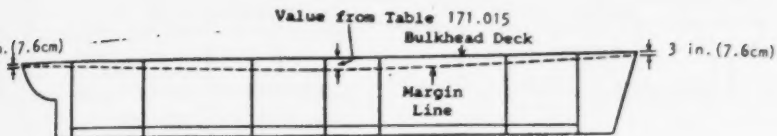
(3) Intermediate values not shown in Table 171.015 must be interpolated.

(4) Figure 171.015(b) illustrates a margin line drawn in this manner.

(1) The parabolic curve must be at least 3 inches (7.6 cm) below the upper

Figure 171.015(b)

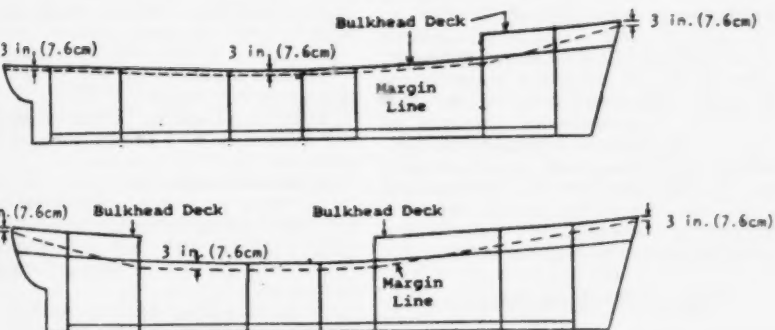
Margin Line for a Vessel With a Continuous Bulkhead Deck and With an Average Value of Sheer at the FP and AP Less Than 12 Inches (30.5 cm)



A vessel with a discontinuous bulkhead deck. A continuous margin line must be drawn that is no more than 3 inches (7.6 cm) below the upper surface of bulkhead deck at side as illustrated in Figure 171.015(c).

Figure 171.015(c)

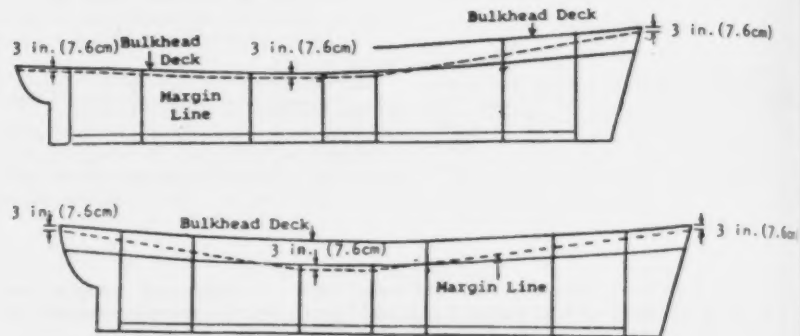
Margin Line for a Vessel With a Discontinuous Bulkhead Deck



A vessel with a discontinuous bulkhead deck where the side shell is carried tight to a higher deck. A continuous margin line must be drawn as illustrated in Figure 171.015(d).

Figure 171.015(d)

Margin Line for a Vessel With a Discontinuous Bulkhead Deck and With Side Shell Watertight to a Higher Deck



§ 171.017 One and two compartment standards of flooding.

(a) *One compartment standard of flooding.* A vessel is designed to a one compartment standard of flooding if the margin line is not submerged when the total buoyancy between each set of two adjacent main transverse watertight bulkheads is lost.

(b) *Two compartment standard of flooding.* A vessel is designed to a two compartment standard of flooding if the margin line is not submerged when the total buoyancy between each set of three adjacent main transverse watertight bulkheads is lost.

Subpart B—Small Vessels

§ 171.020 Specific applicability.

(a) Except as provide in paragraph (b) of this section, this subpart applies to each vessel that is less than 100 gross tons, less than 65 feet (19.8 meters) LOD measured over the weather deck, and carries 150 or less passengers.

(b) This subpart does not apply to a vessel described in paragraph (a) of this section that carries more than 12 passengers on an international voyage.

§ 171.030 Intact stability requirements for a mechanically propelled or a non-self propelled vessel.

(a) This section applies to each vessel, except a sailing vessel or an auxiliary sailing vessel, that—

- (1) Carries more than 49 passengers;
- (2) The stability of which is questioned by the OCMI; or
- (3) Is permitted an increased passenger allowance by § 176.01-25(b) of this chapter.

(b) Each vessel must—

- (1) Comply with § 170.170 and § 171.050 of this subchapter; or
- (2) Perform the test in paragraph (d) of this section in the presence of the OCMI.

(c) Each vessel must be in the following condition when the test in paragraph (d) is performed:

- (1) The construction of the vessel must be complete in all respects.
- (2) Ballast, if necessary, must be solid and must be on board and in place.
- (3) Fuel and water tanks must be approximately three-quarters full.
- (4) The weight of passengers and other loads must be onboard and distributed so as to provide normal operating trim and to simulate the vertical

center of gravity causing the least stable condition that is likely to occur in service. The number of passengers used in determining the total passenger weight must not be more than the maximum number permitted by 176.01-25 of this chapter.

(5) If a vessel has non-return closures on cockpit scuppers or on weather deck drains, the closures must be kept open during the test.

(d) Each vessel must not exceed the limitations in paragraph (e) of this section, when subjected to the greater of the following heeling moments:

$$M_p = \frac{(W)(B)}{6}$$

$$\text{or } M_w = (P)(A)(H)$$

Where—

M_p —Passenger heeling moment in foot-lbs. (kilogram-meters).

W —the total passenger weight. (Assume 140 lbs. (63.5 kg) per passenger on protected waters when passenger load consists of men, women, and children. Assume 160 lbs. (72.6 kg) per passenger all other times.)

B —The maximum transverse distance that is accessible to the passengers in feet (meters).

M_w —Wind heeling moment in foot-lbs. (kilogram-meters).

P —A wind pressure of—

(1) 7.5 lbs./square foot (36.6 kg/square meter) for operation in protected waters;

(2) 10.0 lbs./square foot (48.8 kg/square meter) for operation in partially protected waters; and

(3) 15.0 lbs./square foot (73.2 kg/square meter) for operation in exposed waters.

A —Area, in square feet (square meters), of the projected lateral surface of the vessel above the waterline (this surface includes each projected area of the hull, superstructure and area bounded by railings and structural canopies).

H —Height, in feet (meters), to the center of area (A) above the waterline.

(e) Each vessel must not exceed the following limits of heel when doing the test in paragraph (d) of this section:

(1) *On a flush deck or well deck vessel*, no more than one half the freeboard may be immersed, except that, on a well deck vessel that operates on protected waters and has scuppers, the

full freeboard may be immersed if the full freeboard is not more than one quarter of the distance from the waterline to the gunwale.

(2) *On a cockpit boat*, the maximum allowable immersion is calculated from the following equation:

(i) On exposed waters—

$$i = \frac{f(2L - 1.5L')}{4L}$$

(ii) On protected or partially protected waters—

$$i = \frac{f(2L - L')}{4L}$$

Where—

i —maximum allowable immersion in feet (meters).

f —freeboard in feet (meters).

L —LOD, measured over the weather deck, in feet (meters).

L' —length of cockpit in feet (meters).

(3) *On an open boat*, no more than one-quarter of the freeboard may be immersed.

(4) In no case may the angle of heel exceed 14 degrees.

(f) The limits of heel must be measured at—

(1) The point of minimum freeboard; or

(2) At a point three quarters of the vessel's length from the bow if the point of minimum freeboard is aft of this point.

(g) Each ferry must also be tested in a manner acceptable to the OCMI to determine whether the trim or heel during loading or unloading will submerge the deck edge. A ferry passes this test if the deck edge is not submerged during loading or unloading.

(h) When demonstrating compliance with paragraph (e) of this section, the freeboard must be measured as follows:

(1) *For a flush deck or well deck vessel*, the freeboard must be measured to the top of the weatherdeck at the side of the vessel.

(2) *For a vessel with a cockpit or for an open boat*, the freeboard must be measured to the top of the gunwale.

§ 171.035

§ 171.035 Intact stability requirements for a sailing vessel or an auxiliary sailing vessel.

(a) Except as provided in paragraph (b) of this section, each of the following sailing vessels and auxiliary sailing vessels must meet the intact stability standards of §§ 170.170 and 171.055 of this subchapter:

(1) A vessel to be operated in exposed waters.

(2) A vessel to be operated during non-daylight hours.

(3) A vessel of unusual type, rig, or hull form.

(4) A vessel that carries more than 49 passengers.

(5) A sailing school vessel that carries a combined total of six or more sailing school students or instructors.

(b) A catamaran must meet the intact stability requirements of §§ 170.170 and 171.057 of this subchapter.

(c) Each sailing vessel and auxiliary sailing vessel not listed in paragraph (a) or (b) of this section must comply with the requirements in paragraphs (d) through (h).

(d) Each vessel operating in partially protected waters must have a self-bailing cockpit.

(e) The OCMI determines whether the vessel has adequate stability for protected waters or partially protected waters. When making this determination, the analysis techniques of paragraph (f) or (g) of this section are used unless the OCMI determines that other analysis techniques are more appropriate.

(f) Operational tests may be performed to assure that the vessel shows satisfactory handling characteristics under sail.

(g) The simplified stability test of § 171.030 may be used. The heeling moment used for this test must be the greater of the following:

(1) Passenger heeling moment from § 171.030.

(2) Wind heeling moment from § 171.030 under bare poles, or, if the vessel has no auxiliary power, with storm sails set.

(3) Wind heeling moment calculated from the following equation:

46 CFR Ch. I (10-1-90 Edition)

$$Mw = (P)(A)(H)$$

where—

Mw=wind heeling moment in foot-lbs. (kilogram-meters).

A=the windage area of the vessel in square feet (square meters) with all sail set and trimmed flat.

H=the distance in feet (meters) from the center of the windage area to the waterline.

P=1.0 lbs./square foot (4.9 kilograms/square meter) for both protected and partially protected waters.

(h) Additional or different stability requirements may be needed for a broad, shallow draft vessel with little or no ballast outside the hull. The additional requirements, if needed, will be prescribed by the appropriate Commanding Officer, Marine Safety Center.

[CGD 79-023, 48 FR 51017, Nov. 4, 1983, as amended by CGD 83-005, 51 FR 924, Jan. 1, 1986; CGD 88-070, 53 FR 34537, Sept. 7, 1988]

§ 171.040 Watertight subdivision.

(a) Each vessel that carries more than 49 passengers must comply with the following:

(1) Each vessel must have a collision bulkhead.

(2) If the vessel is designed to comply with § 171.030(b)(1), it must also meet the subdivision and damage stability requirements in §§ 171.070 and 171.080.

(3) If the vessel is designed to comply with § 171.030(b)(2), the main transverse watertight bulkheads must be spaced in accordance with § 171.040.

(b) Each vessel that does not carry more than 49 passengers must have a collision bulkhead unless it is—

(1) Less than 40 feet (12 meters) in length and operated on partially protected waters; or

(2) Operated on other than ocean waters.

(c) Insofar as practicable, watertight bulkheads must be installed in one plane without steps or recesses.

(d) Each double-ended ferry that is required by paragraphs (a) or (b) of this section to have a collision bulkhead must also have a second collision bulkhead. One collision bulkhead must be located in each end of the vessel.

§ 171.043 Simplified method of spacing main transverse watertight bulkheads.

(a) The maximum distance between adjacent main transverse watertight bulkheads on vessels required by § 171.040(a)(3) to comply with this section, must not be greater than the smaller of the following:

- (1) One-third of LOD measured over the bulkhead deck; or
- (2) The distance given by the following equation:

$$d = \frac{(F)(f)(L)}{D}$$

where—

d=the maximum distance in feet (meters) between adjacent main transverse watertight bulkheads.

f=the effective freeboard in feet (meters) calculated for each pair of adjacent bulkheads in accordance with paragraph (b) of this section.

L=LOD in feet (meters) measured over the bulkhead deck.

F=the floodable length factor from Table 171.043.

D=the distance in feet (meters) from the inside of the shell plating or planking to the point of intersection of the bulkhead deck and side shell when measured amidships at a point one-quarter of the maximum beam, amidships, from the centerline as shown in Figure 171.043(a).

(b) The effective freeboard for each compartment is calculated by the following equation:

$$f = \frac{a+b}{2}$$

where—

a=the effective freeboard in feet (meters).

b=the freeboard in feet (meters) measured—

(1) at the forward main transverse watertight bulkhead; and

(2) from the deepest load line to—

(i) the top of the bulkhead deck on a flush deck vessel; or

(ii) if a vessel has a stepped bulkhead deck, the line shown in Figure 171.043(b); or

(iii) if a vessel has an opening port light below the bulkhead deck, the line shown in Figure 171.043(c).

b=the freeboard in feet (meters) measured—

(1) at the aft main transverse watertight bulkhead; and

(2) from the deepest load line to—

(i) the top of the bulkhead deck on a flush deck vessel; or

(ii) if a vessel has a stepped bulkhead deck, the line shown in Figure 171.043(b); or

(iii) if a vessel has an opening port light below the bulkhead deck, the line shown in Figure 171.043(c).

TABLE 171.043—TABLE OF FLOODABLE LENGTH FACTORS

(d/L)X100 ¹	Floodable length factor ²
0-10.....	0.33
15.....	.33
20.....	.34
25.....	.36
30.....	.36
35.....	.43
40.....	.48
45.....	.54
50.....	.61
55.....	.63
60.....	.58
65.....	.53
70.....	.48
75.....	.44
80.....	.40
85.....	.37
90-100.....	.34

¹ where—

d=the distance in feet (meters) from the midpoint of the compartment to the forward most point of the bulkhead deck excluding sheer; and

L=the length of the vessel (LOD) in feet (meters) measured over the bulkhead deck.

² Intermediate values of floodable length factor can be obtained by interpolation.

Figure 171.043(a)

Transverse Location for Measuring Depth (D)

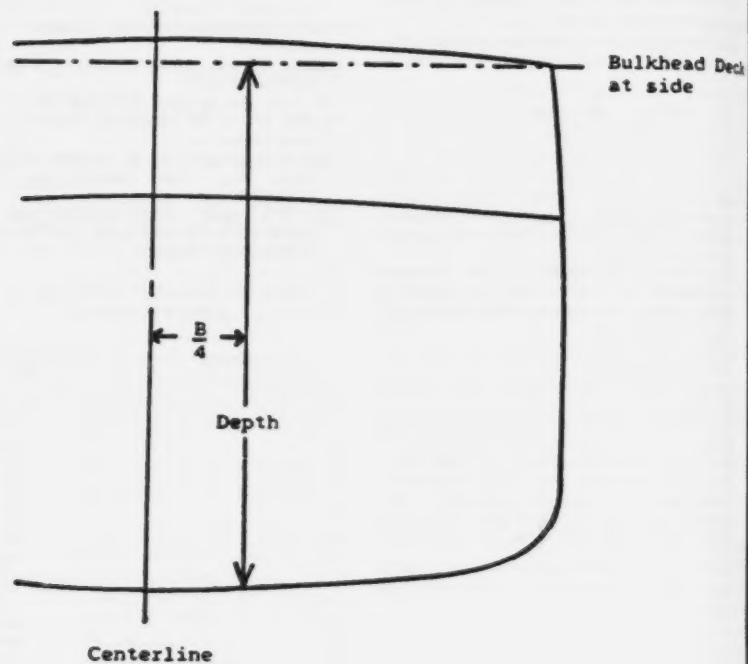
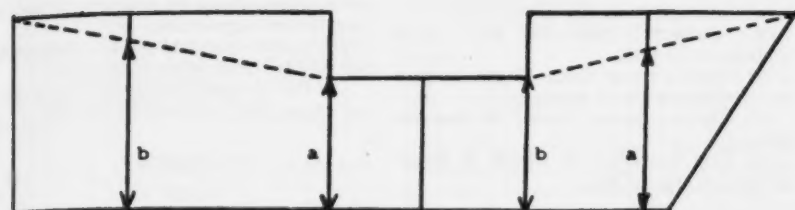


Figure 171.043(b)

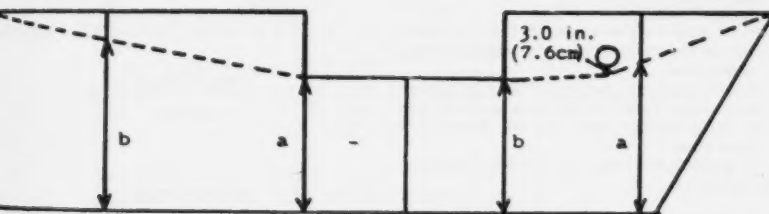
Freeboard Measurement-
Vessel With a Stepped Bulkhead Deck



a and b shown for two sample compartments

Figure 171.043(c)

Freeboard Measurement-
Vessel With a Stepped Bulkhead Deck and
a Port Light Below the Bulkhead Deck



a and b shown for two sample compartments

§ 171.045

Subpart C—Large Vessels

§ 171.045 Specific applicability.

This subpart applies to each vessel that fits into any one of the following categories:

- (a) Greater than 100 gross tons.
- (b) Greater than 65 feet (19.8 meters) in length.
- (c) Carries more than 12 passengers on an international voyage.
- (d) Carries more than 150 passengers.
- (e) The stability of which is questioned by the OCMI.

§ 171.050 Intact stability requirements for a mechanically propelled or nonself-propelled vessel.

Each vessel must be shown by design calculations to have a metacentric height (GM) in feet (meters) in each condition of loading and operation, that is not less than the value given by the following equation:

$$GM = \frac{Nb}{(K)(W)(\tan(T))}$$

where—

- N=number of passengers.
- W=displacement of the vessel in long (metric) tons.
- T=14 degrees or the angle of heel at which the deck edge is first submerged, whichever is less.
- b=distance in feet (meters) from the centerline of the vessel to the geometric center of the passenger deck on one side of the centerline.
- K=24 passengers/long ton (23.6 passengers/metric ton).

§ 171.055 Intact stability requirements for a monohull sailing vessel or a monohull auxiliary sailing vessel.

(a) Except as specified in paragraph (b) of this section, each monohull sailing vessel and auxiliary sailing vessel must be shown by design calculations to meet the stability requirements in this section.

(b) Additional or different stability requirements may be needed for a vessel of unusual form, proportion, or rig. The additional requirements, if needed, will be prescribed by the Commandant.

46 CFR Ch. I (10-1-90 Edition)

(c) Each vessel must have positive righting arms in each condition of loading and operation from—

- (1) 0 to at least 70 degrees of heel in service on protected or partially protected waters; and
 - (2) 0 to at least 90 degrees of heel in service on exposed waters.
- (d) Each vessel must be designed to satisfy the following equations:

(1) For a vessel in service on protected or partially protected waters—

$$\frac{1000(W)HZA}{(A)(H)} > X$$

$$\frac{1000(W)HXB}{(A)(H)} > Y$$

$$\frac{1000(W)HXC}{(A)(H)} > Z$$

where—

- X=1.0 long tons/sq. ft. (10.9 metric tons/meter).
- Y=1.1 long tons/sq. ft. (12.0 metric tons/meter).
- Z=1.25 long tons/sq. ft. (13.7 metric tons/sq. meter).

(2) For a vessel on exposed waters—

$$\frac{1000(W)HZA}{(A)(H)} > X$$

$$\frac{1000(W)HXB}{(A)(H)} > Y$$

$$\frac{1000(W)HXC}{(A)(H)} > Z$$

where—

- HZA, HXB, and HXC are calculated in the manner specified in paragraph (e) of this section.
- X=1.5 long tons/sq. ft. (16.4 metric tons/meter).
- Y=1.7 long tons/sq. ft. (18.6 metric tons/meter).

Z=1.9 long tons/sq. ft. (20.8 metric tons/sq. meter).

A=the projected lateral area or silhouette in square feet (meters) of the portion of the vessel above the waterline computed with all sail set and trimmed flat. Sail overlap areas need not be included except parachute type spinnakers which are to be added regardless of overlap.

H=the vertical distance in feet (meters) from the center of A to the center of the underwater lateral area or approximately to the one-half draft point.

W=the displacement of the vessel in long (metric) tons.

(e) Except as provided in paragraph (f) of this section, HZA, HZB, and HZC must be determined as follows for each condition of loading and operation:

(1) Plot the righting arm curve on Graphs 171.005 (b), (c), and (d) or (e).

(2) If the angle at which the maximum righting arm occurs is less than 35 degrees, the righting arm curve must be truncated as shown on Graph 171.055(a).

(3) Plot an assumed heeling arm curve on Graph 171.055(b) that satisfies the following conditions:

(i) The assumed heeling arm curve must be defined by the equation—

$$HZ = HZA \cos^2 (T)$$

where—

HZ=heeling arm.

HZA=heeling arm at 0 degrees of heel.

T=angle of heel.

(ii) The first intercept shown on Graph 171.055(b) must occur at the angle of heel corresponding to the angle at which deck edge immersion first occurs.

(4) Plot an assumed heeling arm curve on Graph 171.055(c) that satisfies the following conditions:

(i) The assumed heeling arm curve must be defined by the equation—

$$HZ = HZB \cos^2 (T)$$

where—

HZ=heeling arm.

HZB=heeling arm at 0 degrees of heel.

T=angle of heel.

(ii) The area under the assumed heeling arm curve between 0 degrees and the downflooding angle or 60 degrees, whichever is less, must be equal to the area under the righting arm

curve between the same limiting angles.

(5) Plot an assumed heeling arm curve on Graph 171.055 (d) or (e) that satisfies the following conditions:

(i) The assumed heeling arm curve must be defined by—

$$HZ = HZC \cos^2 (T)$$

where—

HZ=heeling arm.

HZC=heeling arm at 0 degrees of heel.

T=angle of heel.

(ii) The area under the assumed heeling arm curve between the angles of 0 and 90 degrees must be equal to the area under the righting arm curve between 0 degrees and—

(A) 90 degrees if the righting arms are positive to an angle less than or equal to 90 degrees; or

(B) The largest angle corresponding to a positive righting arm but no more than 120 degrees if the righting arms are positive to an angle greater than 90 degrees.

(6) The values of HZA, HZB, and HZC are read directly from Graphs 171.055 (b), (c), and (d) or (e).

(f) For the purpose of this section, the downflooding angle means the static angle from the intersection of the vessel's centerline and waterline in calm water to the first opening that cannot be rapidly closed watertight.

(g) HZB and, if the righting arms are positive to an angle of 90 degrees or greater, HZC may be computed from the following equation:

$$HZB \text{ (or HZC)} = \frac{I}{((T/2) + 14.3 \sin 2T)}$$

where—

I=the area under the righting arm curve to—

(1) the downflooding angle or 60 degrees, whichever is less, when computing HZB; or

(2) the largest angle corresponding to a positive righting arm or 90 degrees, whichever is greater, but no greater than 120 degrees when computing HZC.

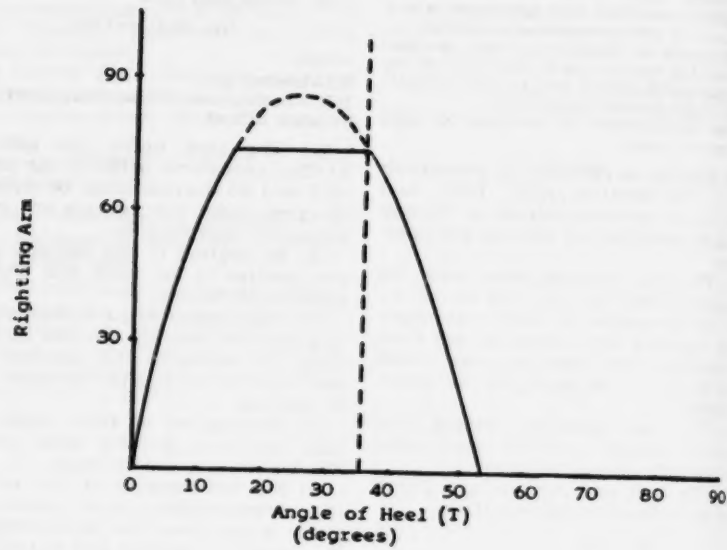
T=the downflooding angle or 60 degrees, whichever is less, when computing HZB or 90 degrees when computing HZC.

§ 171.055

46 CFR Ch. I (10-1-90 Ed.)

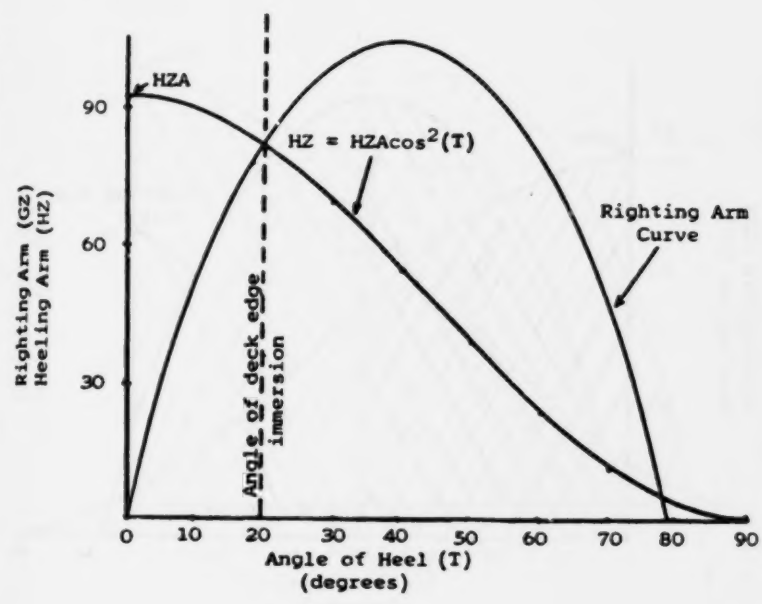
GRAPH 171.055(a)

Truncation of Righting Arm Curve if Maximum Righting Arm Occurs at an Angle of Heel Less Than 35 Degrees



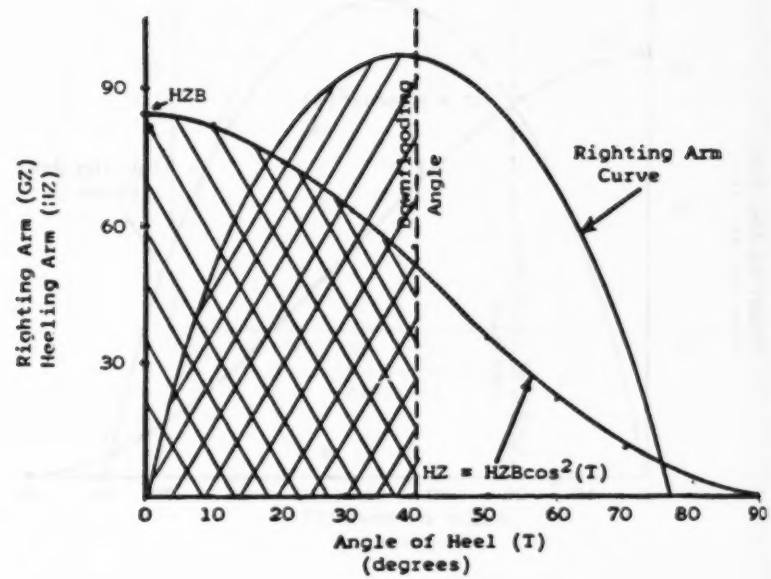
GRAPH 171.055(b)

First Intercept Occurs at the Angle at Which Deck
Edge Immersion First Occurs



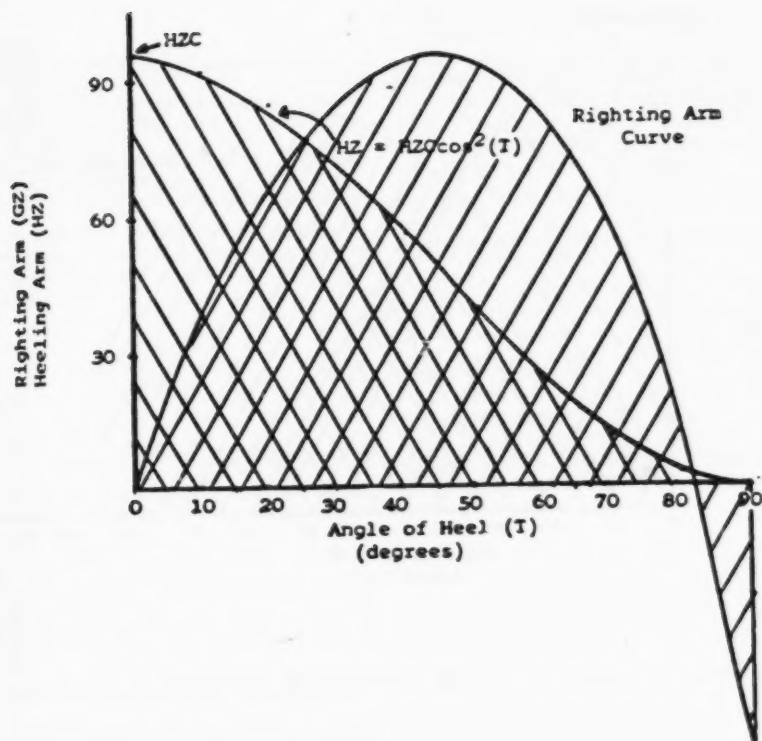
GRAPH 171.055(c)

Shaded Areas are Balanced to the Downflooding Angle



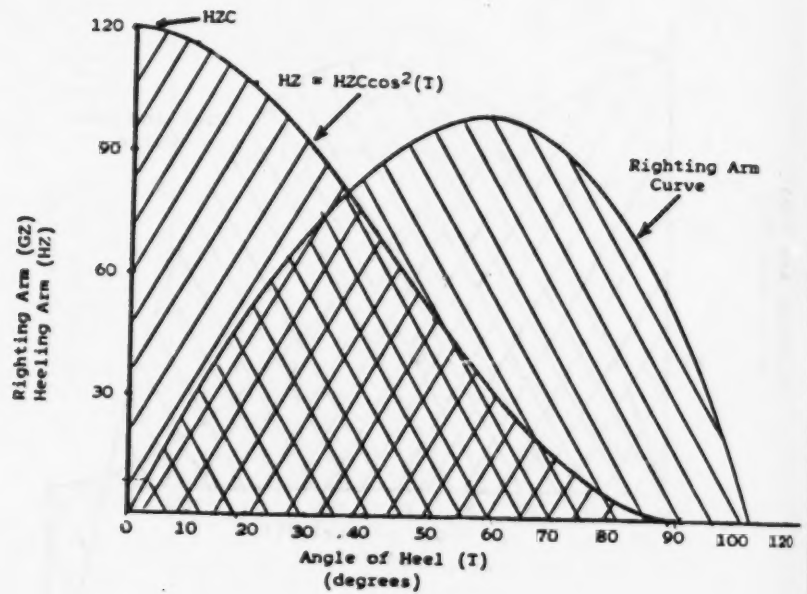
GRAPH 171.055(d)

Righting Arm Curve is not Positive to 90 Degrees and Negative Area is Included



GRAPH 171.055(e)

Righting Arm Curve is Positive Beyond 90 Degrees



[CGD 79-023, 48 FR 51017, Nov. 4, 1983, as amended by CGD 83-005, 51, FR 924, Jan. 8, 1986]

171.057 Intact stability requirements for sailing catamaran.

A sailing vessel that operates on protected waters must be designed to satisfy the following equation:

$$\frac{0.6(W)B}{2(As)(Hm)} > X$$

B = the distance between hull centerlines in feet (meters).

As = total area in square feet (square meters), the mast height above the deck in feet (meters).

W = the combined displacement of both hulls in lbs. (kilograms).

Hm = 10 lbs./sq. ft. (4.88 kilograms/sq. meter).

A sailing vessel that operates on fully protected or exposed waters must be designed to satisfy the following equation:

$$\frac{0.6(W)B}{2(As)(Hm)} > X$$

B = the distance between hull centerlines in feet (meters).

As = total area in square feet (square meters), the mast height above the deck in feet (meters).

W = the combined displacement of both hulls in lbs. (kilograms).

Hm = 15 lbs./sq. ft. (7.32 kilograms/sq. meter).

79-023, 48 FR 51017, Nov. 4, 1983, as amended by CGD 83-065, 51 FR 924, Jan. 9,

171.060 Watertight subdivision: General.

Each of the following vessels must be shown by design calculations to comply with the requirements in §§ 171.065 through 171.068 for Type I subdivision or § 171.075 for Type III subdivision:

Each vessel 100 gross tons or more on an international voyage; and
Each vessel 150 gross tons or more in ocean service.

Each vessel not described in paragraph (a) of this section must be shown by design calculations to comply with the requirements in

§§ 171.070 to 171.073 for Type II subdivision.

(c) Except as allowed in § 171.070(c), each vessel must have a collision bulkhead.

(d) Each double-ended ferry that is required by paragraph (c) of this section to have a collision bulkhead must also have a second collision bulkhead. One collision bulkhead must be located in each end of the vessel.

§ 171.065 Subdivision requirements—Type I.

(a) Except as provided in paragraphs (c) and (f) of this section, the separation between main transverse watertight bulkheads on a vessel, other than one described in paragraph (b) of this section, must not exceed—

(floodable length) X (factor of subdivision)

where—

the factor of subdivision is listed under FS in Table 171.065(a).

(b) The factor of subdivision used to determine compliance with paragraph (a) of this section must be the smaller of 0.5 or the value determined from Table 171.065(a) if—

(1) The vessel is 430 feet (131 meters) or more in LBP; and

(2) The greater of the values of Y as determined by the following equations equals or exceeds the value of X in Table 171.065(b):

$$Y = \frac{(M + 2P)}{V}$$

or

$$Y = \frac{(M + 2P1)}{V + P1 - P}$$

where—

M, V, and P have the same value as listed in Table 171.065(a); and

P1 = the smaller of the following:

(i) 0.6LN (0.056LN) where—
N = the total number of passengers; and
L = LBP in feet (meters).

(ii) The greater of the following:

(A) 0.4LN (0.037LN).

(B) The sum of P and the total volume of passenger spaces above the margin line.

§ 171.065

46 CFR Ch. I (10-1-90 Edition)

(c) The distance A in Figure 171.065 between main transverse watertight bulkheads may exceed the maximum allowed by paragraphs (a) or (b) of this section if each of the distances B and C between adjacent main transverse watertight bulkheads in Figure 171.065 does not exceed the smaller of the following:

- (1) The floodable length.
- (2) Twice the separation allowed by paragraphs (a) or (b) of this section.
- (d) In each vessel 330 feet (100 meters) or more in LBP, one of the main transverse watertight bulkheads aft of the collision bulkhead must be located at a distance from the forward perpendicular that is not greater than the maximum separation allowed by paragraph (a) or (b) of this section.
- (e) The minimum separation between two adjacent main transverse

watertight bulkheads must be at least 10 feet (3.05 meters) plus 3 percent of the LBP of the vessel, or 35 feet (10.7 meters), whichever is less.

(f) The maximum separation of bulkheads allowed by paragraphs (a) or (b) of this section may be increased by the amount allowed in paragraph (g) of this section if—

(1) The space between two adjacent main transverse watertight bulkheads contains internal watertight volume; and

(2) After the assumed side damage specified in paragraph (h) of this section is applied, the internal watertight volume will not be flooded.

(g) For the purpose of paragraph (f) of this section, the allowable increase in separation is as follows:

$$\text{Increase in separation} = \frac{\text{"total volume of allowed local subdivision"}}{\text{"transverse sectional area at center of compartment"}}$$

where—

"total volume of allowed local subdivision" is determined by calculating the unflooded volume on each side of the centerline and multiplying the smaller volume by two.

(h) The assumed extents of side damage are as follows:

(1) *The longitudinal extent of damage* must be assumed to extend over a length equal to the minimum spacing of bulkheads specified in paragraph (e) of this section.

(2) *The transverse extent of damage* must be assumed to penetrate a distance from the shell plating equal to one-fifth the maximum beam of the vessel and at right angles to the centerline at the level of the deepest subdivision load line.

(3) *The vertical extent of damage* must be assumed to extend vertically from the baseline to the margin line.

(i) The maximum separation between the following bulkheads must not exceed the maximum separation between main transverse watertight bulkheads:

(1) The collision bulkhead and the first main transverse watertight bulkhead aft of the collision bulkhead; and

(2) The last main transverse watertight bulkhead and the aftermost point on the bulkhead deck.

(j) The minimum separation between the following bulkheads must not be less than the minimum separation between main transverse watertight bulkheads:

(1) The collision bulkhead and the first main transverse watertight bulkhead aft of the collision bulkhead; and

(2) The last main transverse watertight bulkhead and the aftermost point on the bulkhead deck.

Figure 171.065

Combined Separation of Bulkheads

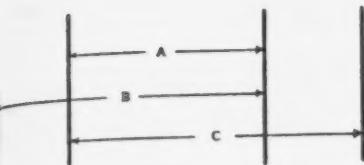


TABLE 171.065(a) (ENGLISH UNITS)

Vessel length (LBP)	Criterion numeral (CN)	FS
Vessel length greater than 392 feet.	CN less than or equal to 23.	A
	CN greater than 23 and less than 123.	F1
	CN greater than or equal to 123.	B
Vessel length greater than or equal to 200 feet and less than or equal to 392 feet.	CN less than or equal to S.	1
	CN greater than S and less than 123.	F2
	CN greater than or equal to 123.	B
Vessel length less than 200 feet.		1

Where—
 FS=the factor of subdivision.
 $CN = 60((M + 2P)/V) + 2787(N/L^3)$
 $A = (58/(L - 49)) + 0.18$
 $B = (29/(L - 26)) + 0.18$
 $F1 = A - ((A - B)(CN - 23)/100)$
 $S = (10904 - 25L)/48$
 $F2 = 1 - ((1 - B)(CN - S)/(123 - S))$
 L=the length of the vessel (LBP) in feet.
 M=the sum of the volume of the machinery space and the volumes of any fuel tanks which are located above the inner bottom forward or aft of the machinery space in cubic feet.
 P=the volume of passenger spaces below the margin line.
 V=the volume of the vessel below the margin line.
 N=the number of passengers that the vessel is to be certificated to carry.

TABLE 171.065(a) (METRIC UNITS)

Vessel length (LBP)	Criterion numeral (CN)	FS
Vessel length greater than 120 meters.	CN less than or equal to 23.	A
	CN greater than 23 and less than 123.	F1
	CN greater than or equal to 123.	B
Vessel length less than 120 meters.	CN less than or equal to S.	1

TABLE 171.065(a) (METRIC UNITS)—Continued

Vessel length (LBP)	Criterion numeral (CN)	FS
Vessel length greater than or equal to 61 meters and less than or equal to 120 meters.	CN greater than S and less than 123.	F2
	CN greater than or equal to 123.	B
Vessel length less than 61 meters.		1

Where—

FS=the factor of subdivision.
 $CN = 60((M + 2P)/V) + 2787(N/L^3)$
 $A = (58/(L - 49)) + 0.18$
 $B = (29/(L - 26)) + 0.18$
 $F1 = A - ((A - B)(CN - 23)/100)$
 $S = (3323.5 - 25L)/14.6$
 $F2 = 1 - ((1 - B)(CN - S)/(123 - S))$
 L=the length of the vessel (LBP) in meters.
 M=the sum of the volume of the machinery space and the volumes of any fuel tanks which are located above the inner bottom forward or aft of the machinery space in cubic meters.
 P=the volume of passenger spaces below the margin line.
 V=the volume of the vessel below the margin line.
 N=the number of passengers that the vessel is to be certificated to carry.

TABLE 171.065(b)—Table of X

Vessel LBP in feet (meters)	X ¹
430 (131)	1.336
440 (134)	1.285
450 (137)	1.230
460 (140)	1.174
470 (143)	1.117
480 (146)	1.060
490 (149)	1.002
500 (152)	0.944
510 (155)	0.885
520 (158)	0.826
530 (162)	0.766
540 (165)	0.706
550 (168)	0.645
554 (169) and up	0.625

¹ Interpolate for intermediate values.

§ 171.066 Calculation of permeability for Type I subdivision.

(a) Except as prescribed in paragraph (b) of this section, the following permeabilities must be used when doing the calculations required to demonstrate compliance with § 171.065(a), (b), and (c):

(1) When doing calculations required to demonstrate compliance with § 171.065(a) and (b), the uniform average permeability given by the formulas in Table 171.066 must be used.

(2) When doing calculations required to demonstrate that compartments on

§ 171.067

opposite sides of a main transverse watertight bulkhead that bounds the machinery space comply with § 171.065(c), the mean of the uniform average permeabilities determined from Table 171.066 for the two compartments must be used.

(b) If an average permeability can be calculated that is less than that given by the formulas in Table 171.066, the lesser value may be substituted if approved by the Commanding Officer, Marine Safety Center. When determining this lesser value, the following permeabilities must be used:

(1) 95% for passenger, crew, and all other spaces that, in the full load condition, normally contain no cargo, stores, provisions, or mail.

(2) 60% for cargo, stores, provisions, or mail spaces.

(3) 85% for spaces containing machinery.

(4) Values approved by the Commanding Officer, Marine Safety Center for double bottoms, oil fuel, and other tanks.

(c) In the case of unusual arrangements, the Commanding Officer, Marine Safety Center may require a detailed calculation of average permeability for the portions of the vessel forward or aft of the machinery spaces. When doing these calculations, the permeabilities specified in paragraph (b) of this section must be used.

(d) When calculating permeability, the total volume of the 'tween deck spaces between two adjacent main transverse watertight bulkheads that contains any passenger or crew space must be regarded as passenger space volume, except that the volume of any space that is completely enclosed in steel bulkheads and is not a crew or passenger space may be excluded.

TABLE 171.066—TABLE OF UNIFORM AVERAGE PERMEABILITIES

Location	Uniform average permeability
Machinery space	$\frac{10(a-c)}{85 + \frac{a-c}{v}}$
Volume forward of machinery space	$\frac{35(a)}{63 + \frac{a}{v}}$

46 CFR Ch. I (10-1-90 Edition)

TABLE 171.066—TABLE OF UNIFORM AVERAGE PERMEABILITIES—Continued

Location	Uniform average permeability
Volume aft of machinery space	$\frac{35(a)}{63 + \frac{a}{v}}$

For each location specified in this table—
a = volume below the margin line of all spaces that, in full load condition, normally contain no cargo, stores, provisions, or mail.
c = volume below the margin line of the cargo, stores, provisions, or mail spaces within the limits of the machinery space.
v = total volume below the margin line.

[CGD 79-023, 48 FR 51017, Nov. 4, 1983, amended by CGD 88-070, 53 FR 34537, Sep. 7, 1988]

§ 171.067 Treatment of stepped and recessed bulkheads in Type I subdivisions

(a) For the purpose of this section:

(1) The main transverse watertight bulkhead immediately forward of stepped bulkhead is referred to as bulkhead 1; and

(2) The main transverse watertight bulkhead immediately aft of the stepped bulkhead is referred to as bulkhead 3.

(b) If a main transverse watertight bulkhead is stepped, it and bulkheads 1 and 3 must meet one of the following conditions:

(1) The separation between bulkheads 1 and 3 must not exceed the following:

(i) If the factor of subdivision (F) determined from § 171.065 (a) or (b) is greater than 0.9, the distance between bulkheads 1 and 3 must not exceed the maximum separation calculated to demonstrate compliance with § 171.065.

(ii) If the factor of subdivision is 0.9 or less, the distance between bulkheads 1 and 3 must not exceed 90% the floodable length or twice the minimum bulkhead separation calculated to demonstrate compliance with § 171.065, whichever is smaller.

(2) Additional watertight bulkheads must be located as shown in Figure 171.067(a) so that distances A, B, and D, illustrated in Figure 171.067, satisfy the following:

(i) Distances A and B must not exceed the maximum spacing allowed by § 171.065.

§ 171.067

(ii) Distances C and D must not be less than the minimum separation prescribed by § 171.065(e).

(3) The distance A, illustrated in Figure 171.067(b), must not exceed the maximum length determined in § 171.065 corresponding to a margin line taken 3 inches (7.6 cm) below the step.

(c) A main transverse bulkhead may not be recessed unless all parts of the recess are inboard from the shell of the vessel a distance A as illustrated in Figure 171.067(c).

(d) Any part of a recess that lies outside the limits defined in paragraph

(c) of this section must be treated as a step in accordance with paragraph (b) of this section.

(e) The distance between a main transverse watertight bulkhead and the transverse plane passing through the nearest portion of a recessed bulkhead must be greater than the minimum separation specified by § 171.065(e).

(f) If a main transverse bulkhead is stepped or recessed, equivalent plane bulkheads must be used in the calculations required to demonstrate compliance with § 171.065.

Figure 171.067(a)

Additional Subdivision

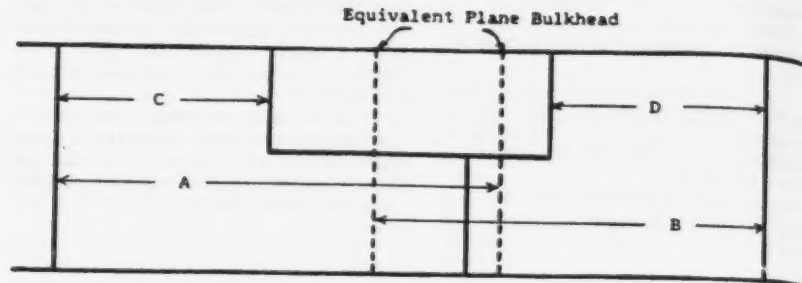


Figure 171.067(b)

Margin Line Below Step

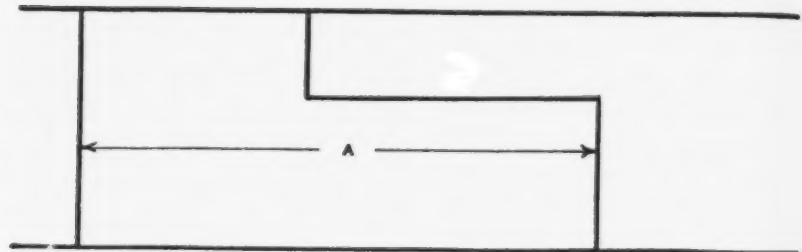
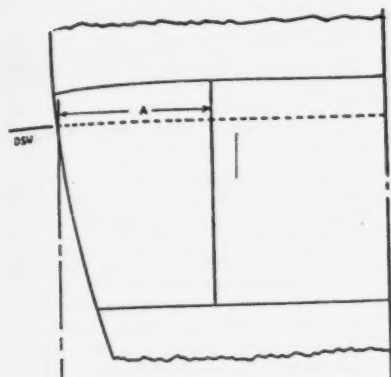


Figure 171.067(c)

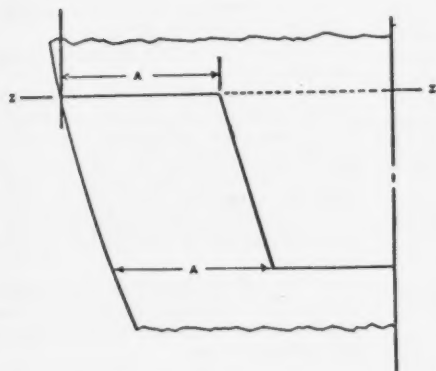
Limits of a Recess



Section Through Recess
At ZZ

A = One-fifth the maximum beam measured
on the waterline corresponding to
the deepest subdivision waterline.

DSW = Deepest subdivision waterline



Plan View of Recess at
the waterline corresponding
to the deepest subdivision
waterline

§ 171.068

§ 171.068 Special considerations for Type I subdivision for vessels on short international voyages.

(a) The calculations done to demonstrate compliance with § 171.065 for a vessel that makes short international voyages and is permitted under § 75.10-10 of this chapter to carry a number of persons on board in excess of the lifeboat capacity must—

(1) Assume the uniform average permeabilities given in Table 171.068 in lieu of those in Table 171.066; and

(2) Use a factor of subdivision (FS) that is the smaller of the following:

- (i) The value from Table 171.065(a).
- (ii) 0.50.

(b) For a vessel less than 300 feet (91 meters) in length, the Commanding Officer, Marine Safety Center may approve the separation of main transverse watertight bulkheads greater than that permitted by paragraph (a) of this section if—

(1) The shorter separation is impracticable; and

(2) The separation is the smallest that is practicable.

(c) In the case of ships less than 180 feet (55 meters) in length, the Commanding Officer, Marine Safety Center may approve a further relaxation in the bulkhead spacing. However, in no case may the separation be large enough to prevent the vessel from complying with the flooding requirements for Type II subdivision in § 171.070.

TABLE 171.068—TABLE OF UNIFORM AVERAGE PERMEABILITIES

Location	Uniform average permeability
Machinery Space.....	$10(a-c) \div 85 + \frac{v}{85}$
Volume Forward of Machinery Space.....	$35(b) \div 95 + \frac{v}{95}$
Volume Aft of Machinery Space.....	$35(b) \div 95 + \frac{v}{95}$

For each location specified in this table—
a=volume below the margin line of all spaces that, in the full load condition, normally contain no cargo, baggage, stores, provisions, or mail.

b=volume below the margin line and above the tops of floors, inner bottoms, or peak tanks of coal or oil fuel bunkers, chain lockers, fresh water tanks, and of all spaces that, in the full load condition, normally contain stores,

46 CFR Ch. I (10-1-90 Edition)

baggage, mail, cargo, or provisions. If cargo holds are occupied by cargo, no part of the cargo space is to be included in this volume.

c=volume below the margin line of the cargo, stores, provisions, or mail spaces within the limits of the machinery space.

v=total volume below the margin line.

[CGD 79-023, 48 FR 51017, Nov. 4, 1983, amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

§ 171.070 Subdivision requirements—Type II.

(a) Each vessel, except a ferry vessel, must be designed so that, while in each condition of loading and operation, it complies with the standard of flooding specified in Table 171.070(a).

(b) Except as provided in paragraph (c), each ferry vessel must be designed so that, while in each condition of loading and operation, it meets the standard of flooding specified in Table 171.070(b).

(c) A ferry vessel described in paragraph (d) of this section need not meet the standard of flooding specified in Table 171.070(b), except that a ferry vessel in Great Lakes service must at least have a collision bulkhead.

(d) Paragraph (c) of this section applies to a ferry vessel that—

(1) Is 150 feet (46 meters) or less in length; and

(2) Has sufficient air tankage, other internal buoyancy to float the vessel with no part of the margin line submerged when the vessel is completely flooded. If foam is used in compliance with this paragraph, it must be installed in accordance with the requirements in § 170.245 of this chapter.

(e) Except as specified in paragraph (f) of this section, each main transverse watertight bulkhead must be spaced as follows:

(1) If the LBP of the vessel is 143 feet (43.5 meters) or more, each main transverse watertight bulkhead must be at least 10 feet (3 meters) plus 1 percent of the vessel's LBP from—

(i) Every other main transverse watertight bulkhead;

(ii) The collision bulkhead; and

(iii) The aftermost point on the bulkhead deck.

(2) If the LBP of the vessel is less than 143 feet (43.5 meters) and the vessel does not make international

voyages, each main transverse watertight bulkhead must be no less than 10 percent of the vessel's LBP or 6 feet (1.8 meters), whichever is greater, from—

(i) Every other main transverse watertight bulkhead;

(ii) The collision bulkhead; and

(iii) The aftermost point on the bulkhead deck.

(f) If a vessel is required by § 171.060 to have a collision bulkhead in each end of the vessel, then each main transverse watertight bulkhead must be no less than the distance specified in paragraph (e) of this section from—

(1) Every other main transverse watertight bulkhead; and

(2) Each collision bulkhead.

TABLE 171.070(a)—STANDARD OF FLOODING

Passengers carried	Part of vessel	Standard of flooding (compartments)
400 or less	All	1
401 to 600	All of the vessel forward of the first MTWB aft of the collision bulkhead.	2
	All remaining portions of the vessel.	1
601 to 800	All of the vessel forward of the first MTWB that is aft of a point 40% of the vessel's LBP aft of the forward perpendicular.	2
	All remaining portions of the vessel.	1
801 to 1000	All of the vessel forward of the first MTWB that is aft of a point 60% of the vessel's LBP aft of the forward perpendicular.	2
	All remaining portions of the vessel.	1
More than 1000	All	2

Where for this table—
"MTWB" means main transverse watertight bulkhead; and
"Standard of Flooding" is explained in § 171.017 of this subchapter.

TABLE 171.070(b)—STANDARD OF FLOODING FOR FERRY VESSELS

Vessel length	Part of vessel	Standard of flooding (compartments)
150 feet (46 meters) or less	All	1

TABLE 171.070(b)—STANDARD OF FLOODING FOR FERRY VESSELS—Continued

Vessel length	Part of vessel	Standard of flooding (compartments)
Greater than 150 feet (46 meters) and less than or equal to 200 feet (61 meters).	All of the vessel forward of the first MTWB aft of the collision bulkhead.	2
	All of the vessel aft of the first MTWB forward of the aft peak bulkhead.	2
	All remaining portions of the vessel.	1
Greater than 200 feet (61 meters).	All	2

Where for this table—
"MTWB" means main transverse watertight bulkhead; and
"Standard of Flooding" is explained in § 171.017 of this subchapter.

§ 171.072 Calculation of permeability for Type II subdivision.

When doing calculations to show compliance with § 171.070, the following uniform average permeabilities must be assumed:

(a) 85 percent in the machinery space.

(b) 60 percent in the following spaces:

(1) Tanks that are normally filled when the vessel is in the full load condition.

(2) Chain lockers.

(3) Cargo spaces.

(4) Stores spaces.

(5) Mail or baggage spaces.

(c) 95 percent in all other spaces.

§ 171.073 Treatment of stepped and recessed bulkheads in Type II subdivision.

(a) A main transverse watertight bulkhead may not be stepped unless additional watertight bulkheads are located as shown in Figure 171.067(a) so that the distances A, B, C, and D illustrated in Figure 171.067(a) comply with the following:

(1) A and B must not exceed the maximum bulkhead spacing that permits compliance with § 171.070; and

(2) C and D must not be less than the minimum spacing specified in § 171.070(e).

§ 171.075

(b) A main transverse watertight bulkhead may not be recessed unless all parts of the recess are inboard from the shell of the vessel as illustrated in Figure 171.067(c).

(c) If a main transverse watertight bulkhead is recessed or stepped, an equivalent plane bulkhead must be used in the calculations required by § 171.070.

§ 171.075 Subdivision requirements—Type III.

(a) Each vessel must be shown by design calculations to comply with the requirements of Regulations 1, 2, 3, 4, 6, and 7 of the Annex to Resolution A.265 (VIII) of the International Maritime Organization (IMO).

(b) International Maritime Organization Resolution A.265 (VIII) is incorporated by reference into this part.

(c) As used in IMO Resolution A.265 (VIII), "Administration" means the Commandant, U.S. Coast Guard.

§ 171.080 Damage stability standards for vessels with Type I or Type II subdivision.

(a) *Calculations.* Each vessel with Type I or Type II subdivision must be shown by design calculations to meet the survival conditions in paragraph (d) of this section in each condition of loading and operation assuming the extent and character of damage specified in paragraph (b) of this section.

(b) *Extent and character of damage.* For the purpose of paragraph (a) of this section, design calculations must assume that the damage—

(1) Has the character specified in Table 171.080(a); and

(2) Consists of a penetration having the dimensions specified in Table 171.080(a) except that, if the most disabling penetration would be less than the penetration described in the table, the smaller penetration must be assumed.

(c) *Permeability.* When doing the calculations required in paragraph (a) of this section, the permeability of each space must be calculated in a manner approved by the Commanding Officer, Marine Safety Center or be taken from Table 171.080(c).

(d) *Damage survival.* A vessel is presumed to survive assumed damage if it

46 CFR Ch. I (10-1-90 Edition)

meets the following conditions in the final stage of flooding:

(1) On a vessel required to survive assumed damage with a longitudinal extent of 10 feet (3 meters) plus 0.03L, the final angle of equilibrium must not exceed 7 degrees after equalization, except that the final angle may be as large as 15 degrees if—

(i) The vessel is not equipped with equalization or is equipped with fully automatic equalization; and

(ii) The Commanding Officer, Marine Safety Center approves the vessel's range of stability in the damaged condition.

(2) On a vessel required to survive assumed damage with a longitudinal extent of 20 feet (6.1 meters) plus 0.04L, the angle of equilibrium must not exceed 15 degrees after equalization.

(3) The margin line may not be submerged at any point.

(4) The vessel's metacentric height (GM) must be at least 2 inches (5 cm) when the vessel is in the upright position.

(e) *Equalization.* (1) Equalization systems on vessels of 150 gross tons or more in ocean service must meet the following:

(i) Equalization must be automatic except that the Commanding Officer, Marine Safety Center may approve other means of equalization if—

(A) It is impracticable to make equalization automatic; and

(B) Controls to cross-flooding equipment are located above the bulkhead deck.

(ii) Equalization must be fully accomplished within 15 minutes after damage occurs.

(2) Equalization on vessels under 150 gross tons in ocean service and on all vessels in other than ocean service must meet the following:

(i) Equalization must not depend on the operation of valves.

(ii) Equalization must be fully accomplished within 15 minutes after damage occurs.

(3) The estimated maximum angle of heel before equalization must be approved by the Commanding Officer, Marine Safety Center.

TABLE 171.080(a)—EXTENT AND CHARACTER OF DAMAGE

Vessel designator ¹	Longitudinal penetration ²	Transverse penetration ^{3,4}	Vertical penetration	Character of Damage
Z	10 feet (3 meters) plus .03L or 35 feet (10.7 meters) whichever is less. ⁵	B/5	from the baseline upward without limit.	Assumes no damage to any main transverse watertight bulkhead.
Y	10 feet (3 meters) plus .03L or 35 feet (10.7 meters) whichever is less.	B/5	From the baseline upward without limit.	Assumes damage to no more than one main transverse watertight bulkhead.
X	10 feet (3 meters) plus .03L or 35 feet (10.7 meters) whichever is less.	B/5	from the baseline upward without limit.	Assumes damage to no more than one main transverse watertight bulkhead.
	20 feet (6.1 meters) plus 0.04L	B/5	From the top of the double bottom upward without limit.	Assumes damage to no more than one main transverse watertight bulkhead.
W	20 feet (6.1 meters) plus 0.04L	B/5	From the baseline upward without limit.	Assumes damage to at least two main transverse watertight bulkheads.

(1) W, X, Y, and Z are determined from Table 171.080(b).

(2) L=LBP of the vessel in feet (meters).

(3) B=the beam of the vessel in feet (meters) measured at or below the deepest subdivision load line as defined in 171.010(a) except that, when doing calculations for a vessel that operates only on inland waters or a ferry vessel, B may be taken as the mean of the maximum beam on the bulkhead deck and the maximum beam at the deepest subdivision load line.

(4) The transverse penetration is applied inboard from the side of the vessel, at right angles to the centerline, at the level of the deepest subdivision load line.

(5) .1L or 6 feet (1.8 meters) whichever is greater for vessels described in § 171.070(e)(2).

TABLE 171.080(b)

Vessel category	Vessel designator
Vessels with type I subdivision and a factor of subdivision as determined from § 171.085 (a) or (b) of 0.33 or less.	W.
Vessels with type I subdivision and a factor of subdivision as determined from § 171.085 (a) or (b) greater than 0.33 and less than or equal to 0.50.	X.
Vessels with Type II subdivision that are required to meet a two compartment standard of flooding.	Y.
All other vessels	Z.

of the International Maritime Organization (IMO).

(b) International Maritime Organization Resolution A.265 (VIII) is incorporated by reference into this part.

(c) As used in IMO Resolution A.265 (VIII), "Administration" means the Commandant, U.S. Coast Guard.

(d) Section 56.50-57 of this chapter contains additional requirements on bilge pumping and piping systems.

Subpart D—Additional Subdivision Requirements

§ 171.085 Collision bulkhead.

(a) Paragraphs (b) through (g) of this section apply to each vessel of 100 gross tons or more and paragraphs (h) and (i) of this section apply to each vessel that is less than 100 gross tons.

(b) The portion of the collision bulkhead that is below the bulkhead deck must be watertight.

(c) Each portion of the collision bulkhead must be at least—

(1) 5 percent of the LBP from the forward perpendicular in a motor vessel; and

(2) 5 feet (1.52 meters) from the forward perpendicular in a steam vessel.

(d) The collision bulkhead must be no more than 10 feet (3 meters) plus 5

TABLE 171.080(c)—PERMEABILITY

Spaces and tanks	Permeability (percent)
Cargo, coal, stores	60.
Accommodations	95.
Machinery	85.
Tanks	0 or 95. ¹

¹ Whichever value results in the more disabling condition.

[CGD 79-023, 48 FR 51017, Nov. 4, 1983, as amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

§ 171.082 Damage stability standards for vessels with Type III subdivision.

(a) Each vessel must be shown by design calculations to comply with the requirements of Regulations 1 and 5 of the Annex to Resolution A.265 (VIII)

percent of the LBP from the forward perpendicular.

(e) The collision bulkhead must extend to the deck above the bulkhead deck if the vessel—

- (1) Is in ocean service; and
- (2) Has a superstructure that extends from a point forward of the collision bulkhead to a point at least 15 percent of the LBP aft of the collision bulkhead.

(f) The collision bulkhead required by paragraph (e) of this section must have the following characteristics:

(1) The portion of the collision bulkhead above the bulkhead deck must be weathertight.

(2) If the portion of the collision bulkhead above the bulkhead deck is not located directly above the collision bulkhead below the bulkhead deck, then the bulkhead deck between must be weathertight.

(g) Each opening in the collision bulkhead must—

(1) Be located above the bulkhead deck; and

(2) Have a watertight closure.

(h) Each collision bulkhead—

(1) Must extend to the weather deck;

(2) May not have watertight doors in it; and

(3) May have penetrations and openings that—

(i) Are located as high and as far inboard as practicable; and

(ii) Except as provided in paragraph (i) of this section, have means to make them watertight.

(i) Each vessel that is not required to comply with a one or two compartment standard of flooding may have an opening that cannot be made watertight in the collision bulkhead below the bulkhead deck if—

(1) The lowest edge of the opening is not more than 12 inches (30.5 centimeters) below the bulkhead deck; and

(2) There are at least 36 inches (92 centimeters) of intact collision bulkhead below the lower edge of the opening.

(j) Each portion of the collision bulkhead must be—

(1) At least 5 percent of the LBP from the forward perpendicular; and

(2) No more than 15 percent of the LBP from the forward perpendicular.

§ 171.090 Aft peak bulkhead.

(a) Each of the following vessels must have an aft peak bulkhead:

- (1) Each vessel 100 gross tons or more on an international voyage.
- (2) Each other vessel of more than 150 gross tons.

(b) Except as specified in paragraph (c) of this section, each portion of the aft peak bulkhead below the bulkhead deck must be watertight.

(c) A vessel may have an aft peak bulkhead that does not intersect the bulkhead deck if approved by the Commanding Officer, Marine Safety Center.

[CGD 79-023, 48 FR 51017, Nov. 4, 1983, as amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

§ 171.095 Machinery space bulkhead.

(a) This section applies to each vessel of 100 gross tons or more.

(b) Except as provided in paragraph (c) of this section, a vessel required to have Type I or II subdivision must have enough main transverse watertight bulkheads to separate the machinery space from the remainder of the vessel. All portions of these bulkheads must be watertight below the bulkhead deck.

(c) Compliance with paragraph (b) of this section is not required if the vessel has sufficient air tanks or other internal buoyancy to maintain the vessel afloat while in the full load condition when all compartments and all other tanks are flooded. If foam is used to comply with this paragraph, it must be installed in accordance with the requirements in § 170.245 of this subchapter.

§ 171.100 Shaft tunnels and stern tubes.

(a) Stern tubes in each of the following vessels must be enclosed in watertight spaces:

- (1) Each vessel of 100 gross tons or more on an international voyage.
- (2) Each other vessel over 150 gross tons in ocean or Great Lakes service.
- (3) Each vessel under 100 gross tons that carries more than 12 passengers on an international voyage.

(b) The watertight seal in the bulkhead between the stern tube space and the machinery space must be located

in a watertight shaft tunnel. The vessel must be designed so that the margin line will not be submerged when the watertight shaft tunnel is flooded.

(c) If a vessel has two or more shaft tunnels, they must be connected by a watertight passageway.

(d) If a vessel has two or less shaft tunnels, only one door is permitted between them and the machinery space. If a vessel has more than two shaft tunnels, only two doors are permitted between them and the machinery space.

§ 171.105 Double bottoms.

(a) This section applies to each vessel that carries more than 12 passengers on an international voyage and all other vessels that are—

(1) 100 gross tons or more; and

(2) In ocean or Great Lakes service.

(b) Each vessel over 165 feet (50 meters) and under 200 feet (61 meters) in LBP must have a double bottom that extends from the forward end of the machinery space to the fore peak bulkhead.

(c) Each vessel over 200 feet (61 meters) and under 249 feet (76 meters)

in LBP must have a double bottom that extends from the fore peak bulkhead to the forward end of the machinery space and a double bottom that extends from the aft peak bulkhead to the aft end of the machinery space.

(d) Each vessel 249 feet (76 meters) in LBP and upward must have a double bottom that extends from the fore to the aft peak bulkhead.

(e) Each double bottom required by this section must be at least the depth at the centerline given by the following equation:

$$D = 18.0 + 0.05(L) \text{ inches}$$

$$D = 45.7 + 0.417(L) \text{ centimeters}$$

where—

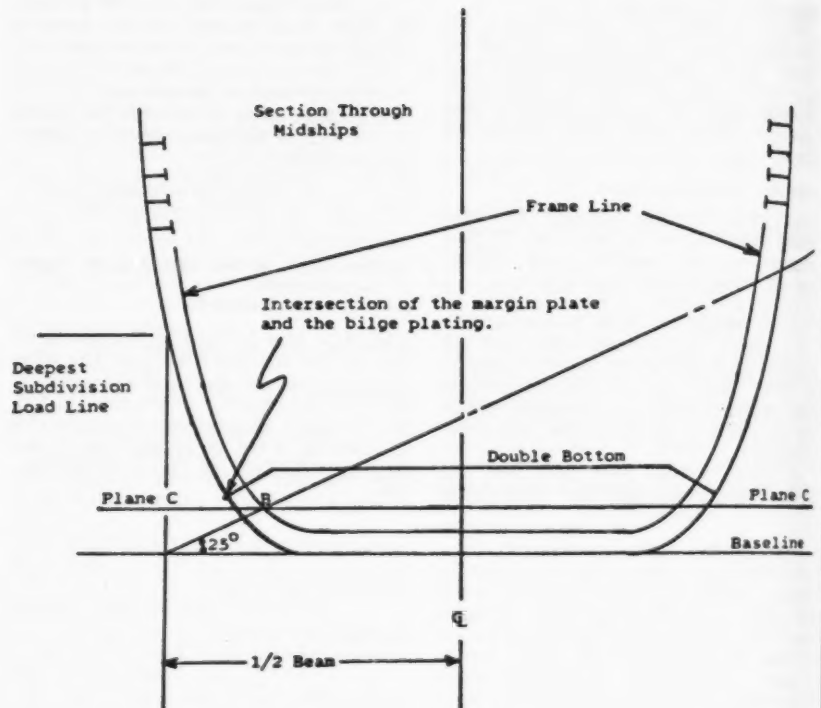
D = the depth at the centerline in inches (centimeters).

L = LBP in feet (meters).

(f) The line formed by the intersection of the margin plate and the bilge plating must be above the horizontal plane C, illustrated in Figure 171.105, at all points. The horizontal plane C is defined by point B, located, as shown in Figure 171.105, in the midships section.

Figure 171.105

Lower Limit of the Intersection of Margin Plate and Bilge Plating



double bottom is not required
that is integral with the hull
self—

the tank is used exclusively for
storage of liquids; and
is approved by the Command-
ing Officer, Marine Safety Center.

double bottom is not required
part of a vessel where the sepa-
ration of main transverse watertight
divisions is governed by a factor of
margin less than or equal to 0.50

The Commanding Officer,
Marine Safety Center approves;

the vessel makes short interna-
l voyages; and

The vessel is permitted by
§ 10 of this chapter to carry a
load of passengers in excess of the
capacity.

49 CFR 171.111, Nov 4, 1983, as
amended by CGD 88-070, 53 FR 34532, Sept.

Wells in double bottoms.

This section applies to each
vessel that has a well installed in a
double bottom required by § 171.105.

Except as provided in paragraph
(f) of this section—

The depth of a well must be at
least 45.7 cm (18 inches) less than the
depth of the double bottom at the cen-
terline.

The well may not extend below
the horizontal plane C illustrated in
Figure 171.105.

The well may extend to the outer
edge of a double bottom at the after
end of a shaft tunnel.

Manholes in double bottoms.

The number of manholes in the
double bottom of a double bottom ves-
sel required by § 171.105 must be reduced to
the minimum required for adequate
ventilation.

Each manhole must have a cover
that is—

adequately watertight; and
protected from damage by cargo

Watertight floors in double bot-

Each vessel is required to have a
double bottom, a watertight transverse
bulkhead must be located in the double

bottom under each main transverse
watertight bulkhead or as near as
practicable to the main transverse wa-
tertight bulkhead. If a vessel also has
duct keels, the transverse divisions
need not extend across them.

Subpart E—Penetrations and Openings in Watertight Bulkheads

§ 171.110 Specific applicability.

(a) Sections 171.111, 171.112, and
171.113 apply to each vessel of 100
gross tons or more.

(b) Section 171.114 applies to each
vessel under 100 gross tons.

§ 171.111 Penetrations and openings in watertight bulkheads in vessels of 100 gross tons or more.

(a) Except as provided in paragraph
(f) of this section, each opening in a
watertight bulkhead must have a
means to close it watertight.

(b) Except in a machinery space, the
means for closing each opening may
not be by bolted portable plates.

(c) If a main transverse watertight
bulkhead is penetrated, the penetra-
tion must be made watertight. Lead or
other heat sensitive materials must
not be used in a system that pene-
trates a main transverse watertight
bulkhead if fire damage to this system
would reduce the watertight integrity
of the bulkhead.

(d) A main transverse watertight
bulkhead must not be penetrated by
valves or cocks unless they are a part
of a piping system.

(e) If a pipe, scupper, or electric
cable passes through a main trans-
verse watertight bulkhead, the open-
ing through which it passes must be
watertight.

(f) A main transverse watertight
bulkhead may not have non-water-
tight penetrations below the bulkhead
deck unless—

(1) The margin line is more than 9
inches (23 centimeters) below the
bulkhead deck at the intersection of
the margin line and the line formed by
the intersection of the plane of the
main transverse watertight bulkhead
and the shell; and

(2) Making all penetrations water-
tight is impracticable.

(g) Penetrations approved in accordance with paragraph (f) of this section must comply with the following:

(1) The bottom of the penetration must not be located—

(i) More than 24 inches (61 centimeters) below the bulkhead deck; nor

(ii) Less than 9 inches (23 centimeters) above the margin line.

(2) The penetration must not be located outboard from the centerline more than $\frac{1}{4}$ of the beam of the vessel measured—

(i) On the bulkhead deck; and

(ii) In the vertical plane of the penetration.

(h) No doors, manholes, or other access openings may be located in a watertight bulkhead that separates two cargo spaces or a cargo space and a permanent or reserve bunker.

§ 171.112 Watertight door openings.

(a) The opening for a watertight door must be located as high in the bulkhead and as far inboard as practicable.

(b) No more than one door, other than a door to a bunker or shaft alley, may be fitted in a main transverse watertight bulkhead within spaces containing the following:

(1) Main and auxiliary propulsion machinery.

(2) Propulsion boilers.

(3) Permanent bunkers.

§ 171.113 Trunks.

(a) For the purpose of this section, "trunk" means a large enclosed passageway through any deck or bulkhead of a vessel.

(b) Each trunk, other than those specified in paragraph (c) of this section, must have a watertight door at each end except that a trunk may have a watertight door at one end if—

(1) The trunk does not pass through more than one main compartment;

(2) The sides of the trunk are not nearer to the shell than is permitted by § 171.067(c) for the sides of a recess in a bulkhead; and

(3) The vessel complies with the subdivision requirements in this part when the volume of the trunk is included with the volume of the compartment into which it opens.

(c) Each trunk that provides access from a crew accommodation space and that passes through a main transverse watertight bulkhead must comply with the following:

(1) The trunk must be watertight.

(2) The trunk, if used for passage overboard, must have at least one end above the margin line and access to the other end of the trunk must be through a watertight door.

(3) The trunk must not pass through the first main transverse watertight bulkhead aft of the collision bulkhead.

§ 171.114 Penetrations and openings in watertight bulkheads in a vessel of less than 100 gross tons.

(a) Penetrations and openings in watertight bulkheads must—

(1) Be kept as high and as far inboard as practicable; and

(2) Have means to make them watertight.

(b) Watertight bulkheads must not have sluice valves.

(c) Each main transverse watertight bulkhead must extend to the bulkhead deck.

Subpart F—Openings in the Side of Vessel Below the Bulkhead Weather Deck

§ 171.115 Specific applicability.

(a) Sections 171.116, 171.117, and 171.118 apply to each vessel of less than 100 gross tons or more.

(b) Section 171.119 applies to each vessel under 100 gross tons.

§ 171.116 Port lights.

(a) A vessel may have port lights below the bulkhead deck if—

(1) It is greater than 150 gross tons and

(2) It is in ocean service.

(b) All port lights in a space must be non-opening if the sill of any port light in that space is below a line that—

(1) Is drawn parallel to the line formed by the intersection of the bulkhead deck and the shell of the vessel; and

(2) Has its lowest point $2\frac{1}{2}$ percent of the beam of the vessel above the deepest subdivision load line.

(c) For the purpose of paragraph (b) of this section, the beam of the vessel is measured at or below the deepest subdivision load line.

(d) Except as provided in paragraph (e) of this section, no port light may be located in a space that is used exclusively for the carriage of cargo, stores, or coal.

(e) A port light may be located in a space used alternately for the carriage of cargo or passengers.

(f) Each port light installed below the bulkhead deck must conform to the following requirements:

(1) The design of each port light must be approved by the Commanding Officer, Marine Safety Center.

(2) Each non-opening port light must be watertight.

(3) Each opening port light must be constructed so that it can be secured watertight.

(4) Each opening port light must be installed with at least one bolt that is secured by a round slotted or recessed nut that requires a special wrench to remove. The nut must be protected by a sleeve or guard to prevent it from being removed with ordinary tools.

[CGD 79-023, 48 FR 51017, Nov. 4, 1983, as amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

§ 171.117 Dead covers.

(a) Except as provided in paragraph (b) of this section, each port light with the sill located below the margin line must have a hinged, inside dead cover.

(b) The dead cover on a port light located in an accommodation space for passengers other than steerage passengers may be portable if—

(1) The apparatus for stowing the dead cover is adjacent to its respective port light;

(2) The port light is located above the deck that is immediately above the deepest subdivision load line;

(3) The port light is aft of a point one-eighth of the LBP of the vessel from the forward perpendicular; and

(4) The port light is above a line that—

(i) Is parallel to the line formed by the intersection of the bulkhead deck and the side of the vessel; and

(ii) Has its lowest point at a height of 12 feet (3.66 meters) plus 2% per-

cent of the beam of the vessel above the deepest subdivision load line.

(c) For the purpose of paragraph (b) of this section, the beam of the vessel is measured at or below the deepest subdivision load line.

(d) Each dead cover must be designed so that—

(1) It can be secured watertight; and

(2) It is not necessary to release any of the special nuts required in § 171.116(f)(4) in order to secure the dead cover.

§ 171.118 Automatic ventilators and side ports.

(a) An automatic ventilator must not be fitted in the side of a vessel below the bulkhead deck unless approved by the Commanding Officer, Marine Safety Center.

(b) The design and construction of each gangway, cargo and coaling port, and similar opening in the side of a vessel must be approved by the Commanding Officer, Marine Safety Center.

(c) In no case may the lowest point of any gangway, cargo and coaling port, or similar opening be below the deepest subdivision load line.

[CGD 79-023, 48 FR 51017, Nov. 4, 1983, as amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

§ 171.119 Openings below the weather deck in the side of a vessel less than 100 gross tons.

(a) If a vessel operates on exposed or partially protected waters, an opening port light is not permitted below the weather deck unless—

(1) The sill is at least 30 inches (76.2 centimeters) above the deepest subdivision load line; and

(2) It has an inside, hinged dead cover.

(b) Except for engine exhausts, each inlet or discharge pipe that penetrates the hull below a line drawn parallel to and at least 6 inches (15.2 centimeters) above the deepest subdivision load line must have means to prevent water from entering the vessel if the pipe fractures or otherwise fails.

(c) A positive action valve or cock that is located as close as possible to the hull is an acceptable means for

§ 171.120

complying with paragraph (b) of this section.

(d) If an inlet or discharge pipe is inaccessible, the means for complying with paragraph (b) of this section must be a shut-off valve that is—

(1) Operable from the weather deck or any other accessible location above the bulkhead deck; and

(2) Labeled at the operating point for identity and direction of closing.

(e) Any connecting device or valve in a hull penetration must not be cast iron.

(f) Each plug cock in an inlet or discharge pipe must have a means, other than a cotter pin, to prevent its loosening or removal from the body.

Subpart G—Watertight Integrity Above the Margin Line

§ 171.120 Specific applicability.

Each vessel that is 100 gross tons or more must comply with § 171.122 and each vessel under 100 gross tons must comply with § 171.124.

§ 171.122 Watertight integrity above the margin line in a vessel of 100 gross tons or more.

(a) For the purpose of this section, a partial watertight bulkhead is one in which all portions are not watertight.

(b) Except as provided in paragraph (d) of this section, the bulkhead deck or a deck above it must be watertight.

(c) Partial watertight bulkheads or web frames must be located in the immediate vicinity of main transverse watertight bulkheads to minimize as much as practicable the entry and spread of water above the bulkhead deck.

(d) If a partial watertight bulkhead or web frame is located on the bulkhead deck in order to comply with paragraph (c) of this section, the joint between it and the shell and bulkhead deck must be watertight.

(e) If a partial watertight bulkhead does not line up with a main transverse watertight bulkhead below the bulkhead deck, the bulkhead deck between them must be watertight.

(f) Each opening in an exposed weather deck must—

46 CFR Ch. I (10-1-90 Edition)

(1) Have a coaming that complies with the height requirements in Table 171.124; and

(2) Have a means for closing weathertight.

(g) Each port light located between the bulkhead deck and the next deck above the bulkhead deck must have an inside dead cover that can be secured watertight.

§ 171.124 Watertight integrity above the margin line in a vessel less than 100 gross tons.

(a) Each hatch exposed to the weather must be watertight, except that the following hatches may be weathertight:

(1) Each hatch on a watertight trunk that extends at least 12 inches (30.5 cm) above the weather deck.

(2) Each hatch in a cabin top.

(3) Each hatch on a vessel that operates only on protected waters.

(b) Each hatch cover must—

(1) Have securing devices; and

(2) Be attached to the hatch frame or coaming by hinges, captive chains or other devices to prevent its loss.

(c) Each hatch that provides access to crew or passenger accommodation must be operable from either side.

(d) Except as provided in paragraph (e) of this section, a weathertight door with permanent watertight coaming that complies with the height requirements in Table 171.124 must be provided for each opening located in a deckhouse or companionway that—

(1) Gives access into the hull; and

(2) Is located in—

(i) A cockpit;

(ii) A well; or

(iii) An exposed location on a flush deck vessel.

(e) If an opening in a location specified in paragraph (d) of this section is provided with a Class 1 watertight door, the height of the watertight coaming need only be sufficient to accommodate the door.

TABLE 171.124

Route	Height of coaming
Exposed or partially protected.	6 inches (15.2 centimeters)
Protected	3 inches (7.6 centimeters)

Subpart H—Drainage of Weather Decks

$$A = 0.1(D) \text{ square inches}$$

$$A = 6.94(D) \text{ Square centimeters}$$

Where—

A = the combined area of the scuppers in square inches (square Centimeters).

D = the area of the cockpit in square feet (square meters).

(e) The cockpit deck of a vessel that operates on exposed or partially protected waters must be at least 10 inches (25.4 cm) above the deepest subdivision load line unless the vessel complies with—

(1) The intact stability requirements of § 171.050;

(2) The Type II subdivision requirements in §§ 171.070, 171.072, and 171.073; and

(3) The damage stability requirements in § 171.080.

(f) The cockpit deck of all vessels that do not operate on exposed or partially protected waters must be located as high above the deepest subdivision load line as practicable.

§ 171.150 Drainage of a vessel with a well deck.

(a) Each well deck on a vessel must be watertight.

(b) Except as provided in paragraph (c) and (d) of this section, the area required for freeing ports in the bulwarks that form a well must be determined as follows:

(1) If a vessel operates on exposed or partially protected waters, it must have at least 100 percent of the freeing port area derived from Table 171.150.

(2) If a vessel operates only on protected or partially protected waters and complies with the requirements in the following sections for a vessel that operates on exposed waters, it must have at least 50 percent of the freeing port area derived from Table 171.150:

(i) The intact stability requirements of § 171.030 or § 171.050 and § 170.170 of this subchapter.

(ii) The subdivision requirements of § 171.040, § 171.043, or § 171.070.

(iii) The damage stability requirements of § 171.080.

(3) If a vessel operates only on protected waters, the freeing port area must be at least equal to the scupper

§ 171.130 Specific applicability.

(a) Section 171.135 applies to each vessel that is 100 gross tons or more.

(b) Sections 171.140, 171.145, 171.150, and 171.155 apply to each vessel under 100 gross tons.

§ 171.135 Weather deck drainage on a vessel of 100 gross tons or more.

The weather deck must have freeing ports, open rails, and scuppers, as necessary, to allow rapid clearing of water under all weather conditions.

§ 171.140 Drainage of a flush deck vessel.

(a) Except as provided in paragraph (b) of this section, the weather deck on a flush deck vessel must be watertight and have no obstruction to overboard drainage.

(b) Each vessel with a flush deck may have solid bulwarks in the forward one-third length of the vessel if—

(1) The bulwarks do not form a well enclosed on all sides; and

(2) The foredeck of the vessel has sufficient sheer to insure drainage aft.

§ 171.145 Drainage of a vessel with a cockpit.

(a) Except as follows, the cockpit must be watertight:

(1) A cockpit may have companionways if they comply with § 171.124(d).

(2) A cockpit may have ventilation openings along its inner periphery if—

(i) The vessel operates only on protected or partially protected waters;

(ii) The ventilation openings are located as high as possible in the side of the cockpit; and

(iii) The height of the ventilation opening does not exceed 2 inches (5 cm).

(b) The cockpit must be designed to be self-bailing.

(c) Scuppers installed in a cockpit must be located to allow rapid clearing of water in all probable conditions of list and trim.

(d) Scuppers must have a combined area of at least the area given by either of the following equations:

§ 171.155

area required by § 171.145(d) for a cockpit of the same size.

(c) The freeing ports must be located to allow rapid clearing of water in all probable conditions of list and trim.

(d) If a vessel that operates on exposed or partially protected waters does not have free drainage from the foredeck aft, then the freeing port area must be derived from Table 171.150 using the entire bulwark length rather than the bulwark length in the after ½ of the vessel as stated in the table.

TABLE 171.150

Height of solid bulwark in inches (centimeters)	Freeing port area in square inches per foot (square centimeters per meter) of bulwark length in the after ½ of the vessel. ⁽¹⁾
6(15)	2(42.3)
12(30)	4(84.7)
18(46)	8(169.3)
24(61)	12(253.9)
30(76)	16(338.6)
36(91)	20(423.2)

⁽¹⁾ Intermediate values of freeing port area can be obtained by interpolation.

§ 171.155 Drainage of an open boat.

The deck within the hull of an open boat must drain to the bilge. Overboard drainage of the deck is not permitted.

PART 172—SPECIAL RULES PERTAINING TO BULK CARGOES

Subpart A—General

Sec.

172.005 Applicability.

Subpart B—Bulk Grain [Reserved]

Subpart C—Special Rules Pertaining to a Barge That Carries a Cargo Regulated Under Subchapter D of This Chapter

172.047 Specific applicability.

172.050 Damage stability.

46 CFR Ch. I (10-1-90 Edition)

Sec.

Subpart D—Special Rules Pertaining to a Vessel That Carries a Cargo Regulated Under 33 CFR Part 157

172.060 Specific applicability.

172.065 Damage stability.

Subpart E—Special Rules Pertaining to a Vessel That Carries a Hazardous Liquid Regulated Under Subchapter O of This Chapter

172.080 Specific applicability.

172.085 Hull type.

172.087 Cargo loading assumptions.

172.090 Intact transverse stability.

172.095 Intact longitudinal stability.

172.100 Watertight integrity.

172.103 Damage stability.

172.104 Character of damage.

172.105 Extent of damage.

172.110 Survival conditions.

Subpart F—Special Rules Pertaining to a Vessel That Carries a Hazardous Liquid Regulated Under Subchapter O of This Chapter

172.125 Specific applicability.

172.127 Definitions.

172.130 Calculations.

172.133 Character of damage.

172.135 Extent of damage.

172.140 Permeability of spaces.

172.150 Survival conditions.

Subpart G—Special Rules Pertaining to a Vessel That Carries a Bulk Liquefied Gas Regulated Under Subchapter O of This Chapter

172.155 Specific applicability.

172.160 Definitions.

172.165 Intact stability calculations.

172.170 Damage stability calculations.

172.175 Character of damage.

172.180 Extent of damage.

172.185 Permeability of spaces.

172.195 Survival conditions.

172.205 Local damage.

Subpart H—Special Rules Pertaining to a Lakes Dry Bulk Cargo Vessels

172.215 Specific applicability.

172.220 Definitions.

172.225 Calculations.

172.230 Character of damage.

172.235 Extent of damage.

172.240 Permeability of spaces.

172.245 Survival conditions.

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SOURCE: CGD 79-023, 48 FR 51040, N 1983, unless otherwise noted.

Subpart A—General

§ 172.045 Applicability.

This part applies to each vessel that carries one of the following cargoes in bulk:

- (a) Grain.
- (b) A cargo listed in Table 30.25-1 of this chapter.
- (c) A cargo regulated under 33 CFR Part 157.
- (d) A cargo listed in Table 151.01-10(b) of this chapter.
- (e) A cargo listed in Table I of Part 153 of this chapter.
- (f) A cargo listed in Table 4 of Part 154 of this chapter.
- (g) Any dry bulk cargo carried in a new Great Lakes vessel.

[CGD 79-023, 48 FR 51040, Nov. 4, 1983, as amended by CGD 80-159, 51 FR 33059, Sept. 18, 1986]

Subpart B—Bulk Grain [Reserved]

Subpart C—Special Rules Pertaining to a Barge That Carries a Cargo Regulated Under Subchapter D of This Chapter

§ 172.047 Specific applicability.

This section applies to each tank barge that carries, in independent tanks described in § 151.15-1(b) of this chapter, a cargo listed in Table 30.25-1 of this chapter that is a—

- (a) Liquefied flammable gas; or
- (b) Flammable liquid that has a Reid vapor pressure in excess of 25 pounds per square inch (172.4 KPa).

§ 172.050 Damage stability.

(a) Each tank barge is assigned a hull type number by the Commandant in accordance with § 32.83-5 of this chapter. The requirements in this section are specified according to the hull type number assigned.

(b) Except as provided in paragraph (c) of this section, each Type I and II barge hull must have a watertight weather deck.

(c) If a Type I or II barge hull has an open hopper, the fully loaded barge must be shown by design calculations to have at least 2 inches (50mm) of positive GM when the hopper space is

flooded to the height of the weather deck.

(d) When demonstrating compliance with paragraph (c) of this section, credit may be given for the buoyancy of the immersed portion of cargo tanks if the tank securing devices are shown by design calculations to be strong enough to hold the tanks in place when they are subjected to the buoyant forces resulting from the water in the hopper.

(e) Each tank barge must be shown by design calculations to have at least 2 inches (50 mm) of positive GM in each condition of loading and operation after assuming the damage specified in paragraph (f) of this section is applied in the following locations:

(1) *Type I barge hull not in an integrated tow.* If a Type I hull is required and the barge is not a box barge designed for use in an integrated tow, design calculations must show that the barge hull can survive damage at any location including on the intersection of a transverse and longitudinal watertight bulkhead.

(2) *Type I barge hull in an integrated tow.* If a Type I hull is required and the barge is a box barge designed for operation in an integrated tow, design calculations must show that the barge can survive damage—

(i) To any location on the bottom of the tank barge except on a transverse watertight bulkhead; and

(ii) To any location on the side of the tank barge including on a transverse watertight bulkhead.

(3) *Type II hull.* If a Type II hull is required, design calculations must show that the barge can survive damage to any location except to a transverse watertight bulkhead.

(f) For the purpose of paragraph (e) of this section—

(1) Design calculations must include both side and bottom damage, applied separately; and

(2) Damage must consist of the most disabling penetration up to and including penetrations having the following dimensions:

(i) Side damage must be assumed to be as follows:

(A) Longitudinal extent—6 feet (183 centimeters).

§ 172.060

(B) Transverse extent—30 inches (76 centimeters).

(C) Vertical extent—from the baseline upward without limit.

(ii) Bottom damage must be assumed to be 15 inches (38.1 centimeters) from the baseline upward.

Subpart D—Special Rules Pertaining to a Vessel That Carries a Cargo Regulated Under 33 CFR Part 157

§ 172.060 Specific applicability.

This section applies to each U.S. tank vessel that must comply with 33 CFR Part 157, Subpart B.

§ 172.065 Damage stability.

(a) *Definitions.* As used in this section, "Length" or "L" means load line length (LLL).

(b) *Calculations.* Each tank vessel must be shown by design calculations to meet the survival conditions in paragraph (g) of this section in each condition of loading and operation except as specified in paragraph (c) of this section, assuming the damage specified in paragraph (d) of this section.

(c) *Conditions of loading and operation.* The design calculations required by paragraph (b) of this section need not be done for ballast conditions if the vessel is not carrying oil, other than oily residues, in cargo tanks.

(d) *Character of damage.* (1) If a tank vessel is longer than 738 feet (225 meters) in length, design calculations must show that it can survive damage at any location.

(2) If a tank vessel is longer than 492 feet (150 meters) in length, but not longer than 738 feet (225 meters), design calculations must show that it can survive damage at any location except the transverse bulkheads bounding an aft machinery space. The machinery space is calculated as a single floodable compartment.

(3) If a tank vessel is 492 feet (150 meters) or less in length, design calculations must show that it can survive damage—

(i) At any location between adjacent main transverse watertight bulkheads except to an aft machinery space;

(ii) To a main transverse watertight bulkhead spaced closer than the longi-

46 CFR Ch. I (10-1-90 Ed.)

tudinal extent of collision penetration specified in Table 172.065(a) from other main transverse watertight bulkhead; and

(iii) To a main transverse watertight bulkhead or a transverse watertight bulkhead bounding a side tank or double bottom tank if there is a recess in the transverse bulkhead that is longer than 10 feet (3.0 meters) and that is located within the extent of penetration of assumed damage. The step formed by the peak bulkhead and after peak tank is not a step for the purpose of this regulation.

(e) *Extent of damage.* For the purpose of paragraph (b) of this section—

(1) Design calculations must include both side and bottom damage, separately; and

(2) Damage must consist of the penetrations having the dimensions specified in Table 172.065(a) except that, in most disabling penetrations would be less than the penetrations described in this paragraph, the smaller penetration must be assumed.

(f) *Permeability of spaces.* When doing the calculations required by paragraph (b) of this section—

(1) The permeability of a floodable space, other than a machinery space, must be as listed in Table 172.065(a).

(2) Calculations in which a machinery space is treated as a floodable space must be based on an assumed machinery space permeability of 85% unless the use of an assumed permeability of less than 85% is justified in detail; and

(3) If a cargo tank would be treated under the assumed damage conditions, a cargo tank must be assumed to be empty of cargo and refill with salt water or fresh water if the vessel operates solely on the Great Lakes, up to the level of the tank vessel's final equilibrium waterline.

(g) *Survival conditions.* A vessel is presumed to survive assumed damage if it meets the following conditions in the final stage of flooding:

(1) *Final waterline.* The final waterline, in the final condition of sinking, heel, and trim, must be below the lower edge of an opening through which progressive flooding may take place, such as an air pipe, or an

ing that is closed by means of a weathertight door or hatch cover. This opening does not include an opening closed by a—

- (i) Watertight manhole cover;
- (ii) Flush scuttle;
- (iii) Small watertight cargo tank hatch cover that maintains the high integrity of the deck;
- (iv) Class 1 door in a watertight bulkhead within the superstructure;
- (v) Remotely operated sliding watertight door; or
- (vi) Side scuttle of the non-opening type.

(2) *Heel angle.* The maximum angle of heel must not exceed 25 degrees, except that this angle may be increased to 30 degrees if no deck edge immersion occurs.

(3) *Range of stability.* Through an angle of 20 degrees beyond its position of equilibrium after flooding, a tank vessel must meet the following conditions:

- (i) The righting arm curve must be positive.
- (ii) The maximum righting arm must be at least 3.94 inches (10 cm).
- (iii) Each submerged opening must be weathertight.

(4) *Progressive flooding.* Pipes, ducts or tunnels within the assumed extent of damage must be either—

- (i) Equipped with arrangements such as stop check valves to prevent progressive flooding to other spaces with which they connect; or
- (ii) Assumed in the design calculations required in paragraph (b) of this section to permit progressive flooding to the spaces with which they connect.

(h) *Buoyancy of superstructure.* For the purpose of paragraph (b) of this section, the buoyancy of any superstructure directly above the side damage is to be disregarded. The unflooded parts of superstructures beyond the extent of damage may be taken into consideration if they are separated from the damaged space by watertight bulkheads and no progressive flooding of these intact spaces takes place.

TABLE 172.065(a)—EXTENT OF DAMAGE

COLLISION PENETRATION	
Longitudinal extent.....	0.495L ^{2/3} or 47.6 feet ((1/3)L ^{2/3} or 14.5m) whichever is shorter.
Transverse extent ¹	B/5 or 37.74 feet (11.5m) which is shorter.
Vertical extent.....	From the baseline upward without limit.
GROUNDING PENETRATION AT THE FORWARD END BUT EXCLUDING ANY DAMAGE AFT OF A POINT 0.3L AFT OF THE FORWARD PERPENDICULAR	
Longitudinal extent.....	0.495L ^{2/3} or 47.6 feet ((1/3)L ^{2/3} or 14.5m) whichever is shorter.
Transverse extent.....	B/6 or 32.81 feet (10m) whichever is shorter but not less than 16.41 feet (5m).
Vertical extent from the baseline.....	B/15 or 19.7 feet (6m) whichever is shorter.
GROUNDING PENETRATION AT ANY OTHER LONGITUDINAL POSITION	
Longitudinal extent.....	L/10 or 16.41 feet (5m) whichever is shorter.
Transverse extent.....	16.41 feet (5m).
Vertical extent from the baseline.....	B/15 or 19.7 feet (6m) whichever is shorter.

¹ Damage applied inboard from the vessel's side at right angles to the centerline at the level of the summer load line assigned under Subchapter E of this chapter.

TABLE 172.065(b)—PERMEABILITY

Spaces and tanks	Permeability (percent)
Storeroom spaces.....	60.
Accommodation spaces.....	95.
Voids.....	95.
Consumable liquid tanks.....	95 or 0. ¹
Other liquid tanks.....	95 or 0. ²

¹ Whichever results in the more disabling condition.

² If tanks are partially filled, the permeability must be determined from the actual density and amount of liquid carried.

Subpart E—Special Rules Pertaining to a Barge That Carries a Hazardous Liquid Regulated Under Subchapter O of This Chapter

§ 172.080 Specific applicability.

This subpart applies to each tank barge that carries a cargo listed in Table 151.01-10(b) of this chapter.

§ 172.085 Hull type.

If a cargo listed in Table 151.05 of Part 151 of this chapter is to be carried, the tank barge must be at least the hull type specified in Table 151.05 of this chapter for that cargo.

§ 172.087

§ 172.087 Cargo loading assumptions.

(a) The calculations required in this subpart must be done for cargo weights and densities up to and including the maximum that is to be endorsed on the Certificate of Inspection in accordance with § 151.04-1(c) of this chapter.

(b) For each condition of loading and operation, each cargo tank must be assumed to have its maximum free surface.

§ 172.090 Intact transverse stability.

(a) Except as provided in paragraph (b) of this section, each tank barge must be shown by design calculations to have a righting arm curve with the following characteristics:

(1) If the tank barge is in river service, the area under the righting arm curve must be at least 5 foot-degrees (1.52 meter-degrees) up to the smallest of the following angles:

(i) The angle of maximum righting arm.

(ii) The downflooding angle.

(2) If the tank barge is in lakes, bays and sounds or Great Lakes summer service, the area under the righting arm curve must be at least 10 foot-degrees (3.05 meter-degrees) up to the smallest of the following angles:

(i) The angle of maximum righting arm.

(ii) The downflooding angle.

(3) If the tank barge is in ocean or Great Lakes winter service, the area under the righting arm curve must be at least 15 foot-degrees (4.57 meter-degrees) up to the smallest of the following angles:

(i) The angle of maximum righting arm.

(ii) The downflooding angle.

(b) If the vertical center of gravity of the cargo is below the weather deck at the side of the tank barge amidships, it must be shown by design calculations that the barge has at least the following metacentric height (GM) in feet (meters) in each condition of loading and operation:

$$GM = \frac{(K)(B)}{fe}$$

where—

46 CFR Ch. I (10-1-90 Edition)

K=0.3 for river service.

K=0.4 for lakes, bays and sounds and Great Lakes summer service.

K=0.5 for ocean and Great Lakes winter service.

B=beam in feet (meters).

fe=effective freeboard in feet (meters).

(c) the effective freeboard is given by—

$$fe = f + fa; \text{ or} \\ fe = d, \text{ whichever is less.}$$

where—

f=the freeboard to the deck edge amidships in feet (meters).

fa=(1.25)(a/L)((2b/B)-1)(h); or fa=h, whichever is less.

where—

a=trunk length in feet (meters).

L=LOA in feet (meters)

b=breadth of a watertight trunk in feet (meters).

B=beam of the barge in feet (meters).

h=height of a watertight trunk in feet (meters).

d=draft of the barge in feet (meters).

(d) For the purpose of this section downflooding angle means the smallest angle from the intersection of the vessel's centerline and waterline in calm water to the first opening that does not close watertight automatically.

§ 172.095 Intact longitudinal stability.

Each tank barge must be shown by design calculations to have a longitudinal metacentric height (GM) in feet (meters) in each condition of loading and operation, at least equal to the following:

$$GM = \frac{0.02(L)^2}{d}$$

where—

L=LOA in feet (meters)

d=draft in feet (meters).

§ 172.100 Watertight integrity.

(a) Except as provided in paragraph (b) of this section, each Type I or II hopper barge hull must have a watertight weather deck.

(b) If a Type I or II barge hull is an open hopper, the fully loaded barge must be shown by design calculations to have at least 2 inches (50 mm) positive GM when the hopper space

flooded to the height of the weather deck.

(c) When doing the calculations required by this section, credit may be given for the buoyancy of the immersed portion of cargo tanks if the tank securing devices are shown by design calculations to be strong enough to hold the tanks in place when they are subjected to the buoyant forces resulting from the water in the hopper.

§ 172.103 Damage stability.

Each tank barge must be shown by design calculations to meet the survival conditions in § 172.110 assuming the damage specified in § 172.104 to the hull type specified in Table 151.05 of Part 151 of this chapter.

§ 172.104 Character of damage.

(a) *Type I barge hull not in an integrated tow.* If a Type I hull is required and the barge is not a box barge designed for use in an integrated tow, design calculations must show that the barge can survive damage at any location including the intersection of a transverse and a longitudinal bulkhead.

(b) *Type I barge hull in an integrated tow.* If a Type I barge hull is required and the barge is a box barge designed for operation in an integrated tow, design calculations must show that the barge can survive damage—

(1) At any location on the bottom of the tank barge except on a transverse watertight bulkhead; and

(2) At any location on the side of the tank barge including on a transverse watertight bulkhead.

(c) *Type II barge hull.* If a Type II hull is required, design calculations must show that a barge can survive damage at any location except on a transverse watertight bulkhead.

§ 172.105 Extent of damage.

For the purpose of § 172.103, design calculations must include both side and bottom damage, applied separately. Damage must consist of the most disabling penetration up to and including penetrations having the following dimensions:

(a) Side damage must be assumed to be as follows:

(1) Longitudinal extent—6 feet (183 centimeters).

(2) Transverse extent—30 inches (76 centimeters).

(3) Vertical extent—from the baseline upward without limit.

(b) Bottom damage must be assumed to be 15 inches (38 centimeters) from the baseline upward.

§ 172.110 Survival conditions.

(a) Paragraphs (c) and (d) of this section apply to a hopper barge and paragraphs (e) through (i) apply to all other tank barges.

(b) A barge is presumed to survive assumed damage if it meets the following conditions in the final stage of flooding:

(c) A hopper barge must not heel or trim beyond the angle at which—

(1) The deck edge is first submerged; or

(2) If the barge has a coaming that is at least 36 inches (91.5 centimeters) in height, the intersection of the deck and the coaming is first submerged, except as provided in paragraph (d) of this section.

(d) A hopper barge must not heel beyond the angle at which the deck edge is first submerged by more than "fa" as defined in § 172.090(c).

(e) Except as provided in paragraphs (h) and (i) of this section, each tank barge must not heel beyond the angle at which—

(1) The deck edge is first submerged; or

(2) If the barge has one or more watertight trunks, the deck edge is first submerged by more than "fa" as defined in § 172.090(c).

(f) Except as provided in paragraphs (h) and (i) of this section, a tank barge must not trim beyond the angle at which—

(1) The deck edge is first submerged; or

(2) If the barge has one or more watertight trunks, the intersection of the deck and the trunk is first submerged.

(g) If a tank barge experiences simultaneous heel and trim, the trim requirements in paragraph (f) of this section apply only at the centerline.

(h) Except as provided in paragraph (i) of this section, in no case may any

§ 172.125

part of the actual cargo tank top be underwater in the final condition of equilibrium.

(1) If a barge has a "step-down" in hull depth on either or both ends and all cargo tank openings are located on the higher deck level, the deck edge and tank top in the stepped-down area may be submerged.

Subpart F—Special Rules Pertaining to a Ship That Carries a Hazardous Liquid Regulated Under Subchapter O of This Chapter

§ 172.125 Specific applicability.

This subpart applies to each tankship that carries a cargo listed in Table I of Part 153 of this chapter, except that it does not apply to a tankship whose cargo tanks are clean and gas free.

§ 172.127 Definitions.

"Length" or "L" means load line length (LLL).

§ 172.130 Calculations.

(a) Except as provided in § 153.7 of this chapter, each tankship must be shown by design calculations to meet the survival conditions in § 172.150 in each condition of loading and operation assuming the damage specified in § 172.133 for the hull type prescribed in Part 153 of this chapter.

(b) If a cargo listed in Table I of Part 153 of this chapter is to be carried, the vessel must be at least the hull type specified in Part 153 of this chapter for that cargo.

[CGD 79-023, 48 FR 51040, Nov. 4, 1983, as amended by CGD 81-101, 52 FR 7799, Mar. 12, 1987]

§ 172.133 Character of damage.

(a) If a type I hull is required, design calculations must show that the vessel can survive damage at any location.

(b) Except as provided in § 153.7 of this chapter, if a type II hull is required, design calculations must show that a vessel—

(1) Longer than 492 feet (150 meters) in length can survive damage at any location; and

(2) Except as specified in paragraph (d) of this section, 492 feet (150

46 CFR Ch. I (10-1-90 Edition)

meters) or less in length can survive damage at any location.

(c) If a Type III hull is required, design calculations must show that a vessel—

(1) Except as specified in paragraph (d) of this section, 410 feet (125 meters) in length or longer can survive damage at any location; and

(2) Less than 410 feet (125 meters) in length can survive damage at any location except to an aft machinery space.

(d) A vessel described in paragraph (b)(2) or (c)(1) of this section need not be designed to survive damage to main transverse watertight bulkheads bounding an aft machinery space. Except as provided in § 153.7 of this chapter, the machinery space must be calculated as a single floodable compartment.

[CGD 79-023, 48 FR 51040, Nov. 4, 1983, as amended by CGD 81-101, 52 FR 7799, Mar. 12, 1987]

§ 172.135 Extent of damage.

For the purpose of § 172.133—

(a) Design calculations must include both side and bottom damage, applied separately; and

(b) Damage must consist of the penetrations having the dimensions given in Table 172.135 except that, if most disabling penetrations would be less than the penetrations given in Table 172.135, the smaller penetrations must be assumed.

TABLE 172.135—EXTENT OF DAMAGE

COLLISION PENETRATION	
Longitudinal extent.....	0.495L or 47.6 feet (14.5m) whichever is shorter.
Transverse extent ¹	B/5 or 37.74 feet (11.5m) whichever is shorter.
Vertical extent.....	From the baseline upward to the out limit.
GROUNDING PENETRATION AT THE FORWARD END BUT EXCLUDING ANY DAMAGE AFT OF A POINT 0.3L AFT OF FORWARD PERPENDICULAR	
Longitudinal extent.....	L/10.
Transverse extent.....	B/6 or 32.81 feet (10m) whichever is shorter.
Vertical extent from the baseline upward.....	B/15 or 19.7 feet (6m) whichever is shorter.
GROUNDING PENETRATION AT ANY OTHER LONGITUDINAL POSITION	
Longitudinal extent.....	L/10 or 16.41 feet (5m) whichever is shorter.
Transverse extent.....	16.41 feet (5m).
Vertical extent from the baseline upward.....	B/15 or 19.7 feet (6m) whichever is shorter.

* Damage applied inboard from the vessel's side at right angles to the centerline at the level of the summer load line assigned under Subchapter E of this chapter.
† If measured amidships.

§ 172.140 Permeability of spaces.

(a) When doing the calculations required in § 172.130, the permeability of a floodable space other than a machinery space must be as listed in Table 172.060(b).

(b) Calculations in which a machinery space is treated as a floodable space must be based on an assumed machinery space permeability of 0.85, unless the use of an assumed permeability of less than 0.85 is justified in detail.

(c) If a cargo tank would be penetrated under the assumed damage, the cargo tank must be assumed to lose all cargo and refill with salt water up to the level of the tankship's final equilibrium waterline.

§ 172.150 Survival conditions.

A tankship is presumed to survive assumed damage if it meets the following conditions in the final stage of flooding:

(a) *Final waterline.* The final waterline, in the final condition of sinkage, heel, and trim, must be below the lower edge of openings such as air pipes and openings closed by watertight doors or hatch covers. The following types of openings may be submerged when the tankship is at the final waterline:

(1) Openings covered by watertight manhole covers or watertight flush scuttles.

(2) Small watertight cargo tank hatch covers.

(3) A Class 1 door in a watertight bulkhead within the superstructure.

(4) Remotely operated sliding watertight doors.

(5) Side scuttles of the non-opening type.

(b) *Heel angle.* (1) Except as described in paragraph (b)(2) of this section, the maximum angle of heel must not exceed 15 degrees (17 degrees if no part of the freeboard deck is immersed).

(2) The Commanding Officer, Marine Safety Center will consider on a case by case basis each vessel 492 feet (150 meters) or less in length

having a final heel angle greater than 17 degrees but less than 25 degrees.

(c) *Range of stability.* Through an angle of 20 degrees beyond its position of equilibrium after flooding, a tankship must meet the following conditions:

(1) The righting arm curve must be positive.

(2) The maximum righting arm must be at least 3.95 inches (10 cm).

(3) Each submerged opening must be weathertight.

(d) *Progressive flooding.* Pipes, ducts or tunnels within the assumed extent of damage must be either—

(1) Equipped with arrangements such as stop check valves to prevent progressive flooding to other spaces with which they connect; or

(2) Assumed in the design calculations required by § 172.130 to flood the spaces with which they connect.

(e) *Buoyancy of superstructure.* The buoyancy of any superstructure directly above the side damage is to be disregarded. The unflooded parts of superstructures beyond the extent of damage may be taken into consideration if they are separated from the damaged space by watertight bulkheads and no progressive flooding of these intact spaces takes place.

(f) *Metacentric height.* After flooding, the tankship's metacentric height must be at least 2 inches (50mm) when the ship is in the upright position.

(g) *Equalization arrangements.* Flooding equalization arrangements requiring mechanical operation such as valves or cross-flooding lines may not be assumed to reduce the angle of heel. Spaces joined by ducts of large cross sectional area are treated as common spaces.

(h) *Intermediate stages of flooding.* If an intermediate stage of flooding is more critical than the final stage, the tankship must be shown by design calculations to meet the requirements in this section in the intermediate stage.

[CGD 79-023, 48 FR 51040, Nov. 4, 1983, as amended by CGD 88-070, 53 FR 34537, Sept. 7, 1988]

Subpart G—Special Rules Pertaining to a Ship That Carries a Bulk Liquefied Gas Regulated Under Subchapter O of This Chapter

§ 172.155 Specific applicability.

This subpart applies to each tankship that has on board a bulk liquefied gas listed in Table 4 of Part 154 of this chapter as cargo, cargo residue, or vapor.

§ 172.160 Definitions.

As used in this subpart—

(a) "Length" or "L" means the load line length (LLL).

(b) "MARVS" means the Maximum Allowable Relief Valve Setting of a cargo tank.

§ 172.165 Intact stability calculations.

(a) Design calculations must show that 2 inches (50mm) of positive metacentric height can be maintained by each tankship when it is being loaded and unloaded.

(b) For the purpose of demonstrating compliance with the requirements of paragraph (a), of this section, the effects of the addition of water ballast may be considered.

§ 172.170 Damage stability calculations.

(a) Each tankship must be shown by design calculations to meet the survival conditions in § 172.195 in each condition of loading and operation assuming the damage specified in § 172.175 for the hull type specified in Table 4 of Part 154 of this chapter.

(b) If a cargo listed in Table 4 of Part 154 of this chapter is to be carried, the vessel must be at least the ship type specified in Table 4 of Part 154 of this chapter for the cargo.

§ 172.175 Character of damage.

(a) If a type IG hull is required, design calculations must show that the vessel can survive damage at any location.

(b) If a type IIG hull is required, design calculations must show that a vessel—

(1) Longer than 492 feet (150 meters) in length can survive damage at any location; and

(2) 492 feet (150 meters) or less in length can survive damage at any location except the transverse bulkhead bounding an aft machinery space. The machinery space is calculated as a single floodable compartment.

(c) If a vessel has independent tank type C with a MARVS of 100 psi (689 kPa) gauge or greater, is 492 feet (150 meters) or less in length, and Table 4 of Part 154 of this chapter allows a type IIPG hull, design calculations must show that the vessel can survive damage at any location, except as prescribed in paragraph (e) of this section.

(d) If a type IIIG hull is required except as specified in paragraph (e) of this section, design calculations must show that a vessel—

(1) 410 feet (125 meters) in length or longer can survive damage at any location; and

(2) Less than 410 feet (125 meters) in length can survive damage at any location, except in the main machinery space.

(e) The calculations in paragraphs (c) and (d) of this section need not assume damage to a transverse bulkhead unless it is spaced closer than the longitudinal extent of collision penetration specified in Table 172.180 from another transverse bulkhead.

(f) If a main transverse watertight bulkhead or transverse watertight bulkhead bounding a side tank or double bottom tank has a step or recess that is longer than 10 feet (3.0 meters) located within the extent of penetration of assumed damage, the vessel must be shown by design calculations to survive damage to this bulkhead. The step formed by the after peak bulkhead and after peak tank top is not a step for the purpose of this regulation.

§ 172.180 Extent of damage.

For the purpose of § 172.170—

(a) Design calculations must include both side and bottom damage, applied separately; and

(b) Damage must consist of the penetrations having the dimensions given in Table 172.180 except that, if the most disabling penetrations would be less than the penetrations given in

ward, DOT

172.180, the smaller penetration assumed.

E 172.180—EXTENT OF DAMAGE

COLLISION PENETRATION
 extent..... 0.495L^{2/3} or 47.6 feet ((1/3)L^{2/3} or 14.5m) whichever is shorter.
 extent..... B/5 or 37.74 feet (11.5m) whichever is shorter.
 extent..... From the baseline upward without limit.

PENETRATION AT THE FORWARD END BUT EX- ANY DAMAGE AFT OF A POINT 0.3L AFT OF THE PERPENDICULAR
 extent..... 0.495L^{2/3} or 47.6 feet ((1/3)L^{2/3} or 14.5m) whichever is shorter.
 extent..... B/6 or 32.61 feet (10m) whichever is shorter.
 extent from the line of the centerline..... B/15 or 8.6 feet (2m) whichever is shorter.

NO PENETRATION AT ANY OTHER LONGITUDINAL POSITION
 extent..... L/10 or 16.41 feet (5m) whichever is shorter.
 extent..... B/6 or 16.41 feet (5m) whichever is shorter.
 extent from the line of the centerline..... B/15 or 8.6 feet (2m) whichever is shorter.

age applied inboard from the vessel's side at right the centerline at the level of the summer load line under Subchapter E of this chapter.
 measured amidships.

172.195 Permeability of spaces.

When doing the calculations re- in § 172.170, the permeability of floodable space other than a machine- space must be as listed in Table 172.170-10(b).

Calculations in which a machine- space is treated as a floodable space must be based on an assumed machine space permeability of 85%, or the use of an assumed perme- ability of less than 85% is justified in Table 172.170-10(b).

If a cargo tank would be pene- trated under the assumed damage, the tank must be assumed to lose all its contents and be refilled with salt water up to the level of the tankship's final equi- librium waterline.

172.195 Survival conditions.

A vessel is presumed to survive as- sumed damage if it meets the follow- ing conditions in the final stage of flooding:

Final waterline. The final water- line in the final condition of sinkage,

heel, and trim, must be below the lower edge of an opening through which progressive flooding may take place, such as an air pipe, or an open- ing that is closed by means of a weath- ertight door or hatch cover. This opening does not include an opening closed by a—

- (1) Watertight manhole cover;
- (2) Flush scuttle;
- (3) Small watertight cargo tank hatch cover that maintains the high integrity of the deck;
- (4) A Class 1 door in a watertight bulkhead within the superstructure;
- (5) Remotely operated sliding water- tight door; or
- (6) A side scuttle of the non-opening type.

(b) *Heel angle.* The maximum angle of heel must not exceed 30 degrees.

(c) *Range of stability.* Through an angle of 20 degrees beyond its position of equilibrium after flooding, a tank- ship must meet the following condi- tions:

- (1) The righting arm curve must be positive.
- (2) The maximum righting arm must be at least 3.94 inches (10 cm).
- (3) Each submerged opening must be weathertight.

(d) *Progressive flooding.* If pipes, ducts, or tunnels are within the as- sumed extent of damage, arrange- ments must be made to prevent pro- gressive flooding to a space that is not assumed to be flooded in the damaged stability calculations.

(e) *Buoyancy of superstructure.* The buoyancy of any superstructure direct- ly above the side damage is to be disre- garded. The unflooded parts of super- structures beyond the extent of damage may be taken into consider- ation if they are separated from the damaged space by watertight bulkheads and no progressive flooding of these intact spaces takes place.

(f) *Metacentric height.* After flood- ing, the tank ship's metacentric height must be at least 2 inches (50 mm) when the vessel is in the upright posi- tion.

(g) *Equalization arrangements.* Equalization arrangements requiring mechanical aids such as valves or cross-flooding lines may not be consid- ered for reducing the angle of heel.

§ 172.205

Spaces joined by ducts of large cross-sectional area are treated as common spaces.

(h) *Intermediate stages of flooding.* If an intermediate stage of flooding is more critical than the final stage, the tank vessel must be shown by design calculations to meet the requirements in this section in the intermediate stage.

§ 172.205 Local damage.

(a) Each tankship must be shown by design calculations to meet the survival conditions in paragraph (b) of this section in each condition of loading and operation assuming that local damage extending 30 inches (76 cm) normal to the hull shell is applied at any location in the cargo length:

(b) The vessel is presumed to survive assumed local damage if it does not heel beyond the smaller of the following angles in the final stage of flooding:

- (1) 30 degrees.
- (2) The angle at which restoration of propulsion and steering, and use of the ballast system is precluded.

Subpart H—Special Rules Pertaining to Great Lakes Dry Bulk Cargo Vessels

SOURCE: CGD 80-159, 51 FR 33059, Sept. 18, 1986, unless otherwise noted.

§ 172.215 Specific applicability.

This subpart applies to each new Great Lakes vessel of 1600 gross tons or more carrying dry cargo in bulk.

§ 172.220 Definitions.

(a) As used in this subpart "Length (L)", "Breadth (B)", and "Molded Depth (D)" are as defined in § 45.3 of this Chapter.

(b) As used in this part "new Great Lakes Vessel" means a vessel operating solely within the limits of the Great Lakes as defined in this Subchapter that:

- (1) Was contracted for on or after November 17, 1986, or delivered on or after November 17, 1988.
- (2) Has undergone a major conversion under a contract made on or after November 17, 1986, or completed a

46 CFR Ch. I (10-1-90 Ed.)

major conversion on or after November 17, 1987.

CGD 80-159, 51 FR 33059, Sept. 18, 1986; FR 6979, Mar. 6, 1987]

§ 172.225 Calculations.

(a) Each vessel must be shown design calculations to meet the survival conditions in § 172.245 in each condition of loading and operation, assuming the damage specified in § 172.230.

(b) When doing the calculations required by paragraph (a) of this section, the virtual increase in the vertical center of gravity due to a liquid in a space must be determined by calculating either—

(1) The free surface effect of liquid with the vessel assumed heeled five degrees from the vertical; or

(2) The shift of the center of gravity of the liquid by the moment of transference method.

(c) In calculating the free surface effect of consumable liquids, it must be assumed that, for each type liquid, at least one transverse pair of wing tanks or a single centerline tank has a free surface. The tank or combination of tanks selected must be the one having the greatest free surface effect.

(d) When doing the calculations required by paragraph (a) of this section, the buoyancy of any superstructure directly above the side damage must not be considered. The unflooded parts of superstructures beyond the extent of damage may be considered if they are separated from the damaged space by watertight bulkheads and progressive flooding of these internal spaces takes place.

§ 172.230 Character of damage.

(a) Design calculations must show that each vessel can survive damage:

(1) To any location between adjacent main transverse watertight bulkheads.

(2) To any location between a main transverse bulkhead and a partial transverse bulkhead in way of a side wing tank;

(3) To a main or wing tank transverse watertight bulkhead spaced closer than the longitudinal extent of collision penetration specified in Table

172.235 to another main transverse watertight bulkhead; and

(4) To a main transverse watertight bulkhead or a transverse watertight bulkhead bounding a side tank or double bottom tank if there is a step or a recess in the transverse bulkhead that is longer than 10 feet (3.05 meters) and that is located within the extent of penetration of assumed damage. The step formed by the after peak bulkhead and after peak tank top is not a step for the purpose of this paragraph.

§ 172.235 Extent of damage.

For the purpose of the calculations required in § 172.225—

(a) Design calculations must include both side and bottom damage, applied separately; and

(b) Damage must consist of the penetrations having the dimensions given in Table 172.235 except that, if the most disabling penetrations would be less than the penetrations described in this paragraph, the smaller penetration must be assumed.

TABLE 172.235—EXTENT OF DAMAGE

Collision Penetration	
Longitudinal extent	0.495 L ^{1/2} or 47.6 feet, (1/3 L ^{1/2} or 14.5 m), whichever is less.
Transverse extent	4 feet 2 inches (1.25 m). ¹
Vertical extent	From the baseline upward without limit.
Grounding Penetration Forward of a Point 0.3L Aft of the Forward Perpendicular	
Longitudinal	0.495 L ^{1/2} or 47.6 feet, (1/3 L ^{1/2} or 14.5 m), whichever is less.
Transverse	B/6 or 32.8 feet (10 m), whichever is less, but not less than 16.4 feet (5 m). ¹
Vertical extent	0.75 m from the baseline.
Grounding Penetration at Any Other Longitudinal Position	
Longitudinal extent	L/10 or 16.4 feet (5 m), whichever is less.
Transverse	4 feet 2 inches (1.25 m).
Vertical extent	2 feet 6 inches (0.75 m) from the baseline.

¹ Damage applied inboard from the vessel's side at right angles to the centerline at the level of the summer load line assigned under Subchapter E of this chapter.

§ 172.240 Permeability of spaces.

When doing the calculations required in § 172.225,

(a) The permeability of a floodable space, other than a machinery or cargo space, must be assumed as listed in Table 172.240;

(b) Calculations in which a machinery space is treated as a floodable space must be based on an assumed machinery space permeability of 85% unless the use of an assumed permeability of less than 85% is justified in detail; and

(c) Calculations in which a cargo space that is completely filled is considered flooded must be based on an assumed cargo space permeability of 60% unless the use of an assumed permeability of less than 60% is justified in detail. If the cargo space is not completely filled, a cargo space permeability of 95% must be assumed unless the use of an assumed permeability of less than 95% is justified in detail.

TABLE 172.240—PERMEABILITY

Spaces and tanks	Permeability (percent)
Storeroom spaces.....	60
Accommodations spaces.....	95
Void spaces.....	95
Consumable liquid tanks.....	¹ 95 or 0
Other liquid tanks.....	² 95 or 0
Cargo (completely filled).....	60
Cargo (empty).....	95
Machinery.....	85

¹ Whichever results in the more disabling condition.

² If tanks are partially filled, the permeability must be determined from the actual density and amount of liquid carried.

§ 172.245 Survival conditions.

A vessel is presumed to survive assumed damage if it meets the following conditions in the final stage of flooding:

(a) *Final waterline.* The final waterline, in the final condition of sinkage, heel, and trim must be below the lower edge of an opening through which progressive flooding may take place, such as an air pipe, or an opening that is closed by means of a watertight door or hatch cover. This opening does not include an opening closed by a:

- (1) Watertight manhole cover;

§ 173.001

(2) Flush scuttle;
(3) Small watertight cargo tank hatch cover that maintains the high integrity of the deck;

(4) Class 1 door in a watertight bulkhead;

(5) Remotely operated sliding watertight door;

(6) Side scuttle of the nonopening type;

(7) Retractable inflatable seal; or

(8) Guillotine door.

(b) *Heel angle*. The maximum angle of heel must not exceed 15 degrees, except that this angle may be increased to 17 degrees if no deck edge immersion occurs.

(c) *Range of stability*. Through an angle of 20 degrees beyond its position of equilibrium after flooding, a vessel must meet the following conditions:

(1) The righting arm curve must be positive.

(2) The maximum righting arm must be at least 4 inches (10 cm).

(3) Each submerged opening must be weathertight

(d) *Metacentric height*. After flooding, the metacentric height must be at least 2 inches (50 mm) when the vessel is in the equilibrium position.

(e) *Progressive flooding*. In the design calculations required by § 172.225, progressive flooding between spaces connected by pipes, ducts or tunnels must be assumed unless:

(1) Pipes within the assumed extent of damage are equipped with arrangements such as stop check valves to prevent progressive flooding to other spaces with which they connect; and,

(2) Progressive flooding through ducts or tunnels is protected against by:

(i) Retractable inflatable seals to cargo hopper gates; or

(ii) Guillotine doors in bulkheads in way of the conveyor belt.

PART 173—SPECIAL RULES PERTAINING TO VESSEL USE

Subpart A—General

173.001 Applicability.

Subpart B—Lifting

173.005 Specific applicability.

173.007 Location of the hook load.

46 CFR Ch. I (10-1-90 Ed.)

173.010 Definitions.

173.020 Intact stability standards: counterballasted and non-counterballasted vessels.

173.025 Additional intact stability standards: Counterballasted vessels.

Subpart C—School Ships

173.050 Specific applicability.

173.051 Public nautical school ships.

173.052 Civilian nautical school ships.

173.053 Sailing school vessels.

173.054 Watertight subdivision damage stability standards for new sailing school vessels.

173.055 Watertight subdivision damage stability standards for existing sailing school vessels.

173.056 Collision and other watertight bulkheads.

173.057 Permitted locations for Class 1 watertight doors.

173.058 Double bottom requirements.

173.059 Penetrations and openings in watertight bulkheads.

173.060 Openings in the side of a vessel below the bulkhead or weather deck.

173.061 Watertight integrity above margin line.

173.062 Drainage of weather deck.

173.063 Intact stability requirements.

Subpart D—Oceanographic Research

173.070 Specific applicability.

173.075 Subdivision requirements.

173.080 Damage stability requirements.

173.085 General subdivision requirements.

Subpart E—Towing

173.090 General.

173.095 Towline pull criterion.

AUTHORITY: 43 U.S.C. 1333; 46 U.S.C. 3306, 5115; E.O. 12234, 45 FR 58801, 3/19/80 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGD 79-023, 48 FR 51045, N 1983, unless otherwise noted.

Subpart A—General

§ 173.001 Applicability.

Each vessel that is engaged in or the following activities must conform with the applicable provisions of this part:

(a) Lifting.

(b) Training (schoolship).

(c) Oceanographic research.

(d) Towing.

Subpart B—Lifting

§ 173.005 Specific applicability.

This subpart applies to each vessel that—

- (a) Is equipped to lift cargo or other objects; and
- (b) Has a maximum heeling moment due to hook load greater than or equal to—

(0.67)(W)(GM)(F/B) in foot-long tons
(0.21)(W)(GM)(F/B) in meter-metric tons

where—

W=displacement of the vessel with the hook load included in long tons (metric tons).

GM=metacentric height with hook load included in feet (meters).

F=freeboard to the deck edge amidships in feet (meters).

B=beam in feet (meters).

§ 173.007 Location of the hook load.

When doing the calculations required in this subpart, the hook load must be considered to be located at the head of the crane.

§ 173.010 Definitions.

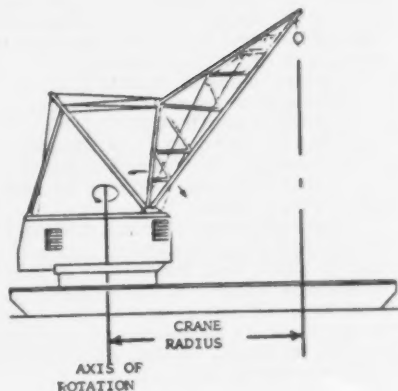
As used in this part—

(a) "Hook load" means the weight of the object lifted by the crane.

(b) "Crane radius" means the distance illustrated in Figure 173.010.

Figure 173.010

Crane Radius



§ 173.020 Intact stability standards: Counterballasted and non-counterballasted vessels.

(a) Except as provided in paragraph (c) of this section, each vessel that is not equipped to counter-ballast while lifting must be shown by design calculations to comply with this section in each condition of loading and operation and at each combination of hook load and crane radius.

(b) Each vessel must have a righting arm curve with the following characteristics:

(1) If the vessel operates in protected or partially protected waters, the area under the righting arm curve up to the smallest of the following angles must be at least 10 foot-degrees (3.05 meter-degrees):

- (i) The angle corresponding to the maximum righting arm.
- (ii) The downflooding angle.
- (iii) 40 degrees.

(2) If the vessel operates in exposed waters, the area under the righting arm curve up to the smallest of the following angles must be at least 15 foot-degrees (4.57 meter-degrees):

- (i) The angle corresponding to the maximum righting arm.

§ 173.025

- (ii) The downflooding angle.
- (iii) 40 degrees.

(c) If the vessel's hull proportions fall within any one of the following limits, in lieu of complying with paragraph (b) of this section the vessel owner may demonstrate in the presence of the OCMI that the vessel will not heel beyond the limits specified in paragraph (d) of this section:

- (1) Beam to depth—3.40 to 4.75.
- (2) Length to beam—3.20 to 4.50.
- (3) Draft to depth—0.80 to 0.85.

(d) For the purpose of paragraph (c) of this section, the following limits of heel apply with the vessel at its deepest operating draft:

- (1) Protected and partially protected waters and Great Lakes in summer—heel to main deck immersion or bilge emergence, whichever occurs first.
- (2) Exposed waters and Great Lakes in winter—heel permitted to one-half of the freeboard or one-half of the draft, whichever occurs first.

§ 173.025 Additional intact stability standards: Counterballasted vessels.

- (a) Each vessel equipped to counterballast while lifting must be shown by design calculations to be able to with-

46 CFR Ch. I (10-1-90 Edition)

stand the sudden loss of the load, in each condition of loading operation and at each combination of hook load and crane radius.

(b) When doing the calculation required by this section, the hook and counterballast heeling moments and vessel righting moments, as plotted on graph 173.025, must be areas that satisfy the following condition:

$$\text{Area II} > \text{Area I} + K$$

where—

- (1) $K=0$ for operation on protected waters and 7 foot-degrees (2.13 meter-degrees) for operation on partially protected exposed waters.
- (2) Areas I and II are shown on graph 173.025.

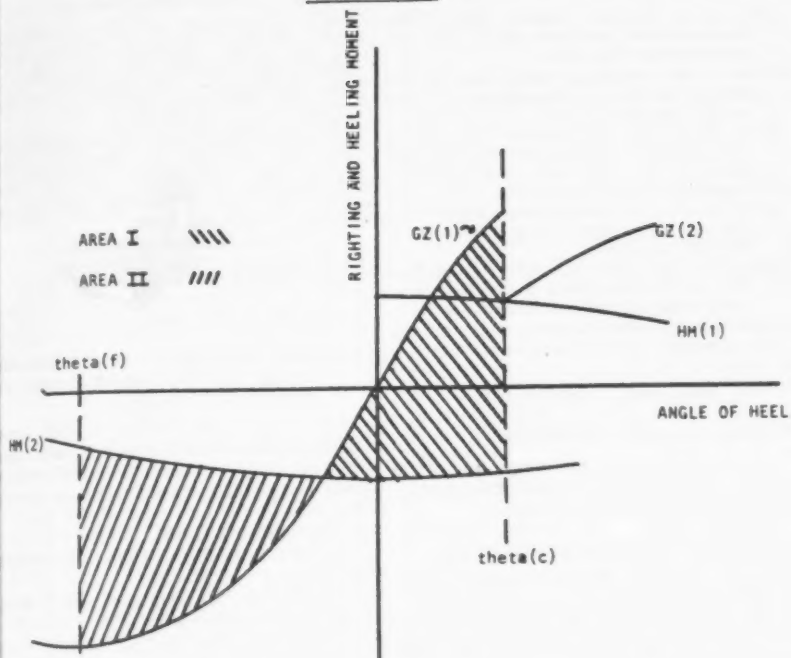
(c) Each heeling moment curve must be defined by —

$$HM = HMO \cos (T)$$

where—

- HM = heeling moment.
- HMO = heeling moment at 0 degrees of heel.
- T = angle of heel.

GRAPH 173.025



§ 173.050

where:

GZ(1) is the righting moment curve at the displacement corresponding to the vessel without hook load.

GZ(2) is the righting moment curve at the displacement corresponding to the vessel with hook load.

HM(1) is the heeling moment curve due to the combined heeling moments of the hook load and the counterballast at the displacement with hook load.

HM(2) is the heeling moment curve due to the counterballast at the displacement without hook load.

theta(c) is the angle of static equilibrium due to the combined hook load and counterballast heeling moments.

theta(f) is the downflooding angle on the counterballasted side of the vessel.

Subpart C—School Ships

§ 173.050 Specific applicability.

Each nautical school ship, inspected under Subchapter R of this chapter, must comply with this subpart.

§ 173.051 Public nautical school ships.

Each public nautical school ship must comply with—

(a) Section 171.070(a) of this subchapter as a passenger vessel carrying 400 or less passengers;

(b) Section 171.070(e) of this subchapter;

(c) Section 171.072 of this subchapter; and

(d) Section 171.073 of this subchapter.

[CGD 79-023, 48 FR 51045, Nov. 4, 1983. Redesignated by CGD 83-005, 51 FR 924, Jan. 9, 1986]

§ 173.052 Civilian nautical school ships.

Each civilian nautical school ship must comply with Part 171 of this subchapter as though it were a passenger vessel. In addition to regular passengers, for the purpose of complying with Part 171, the following will also count as passengers:

(a) A student.

(b) A cadet.

(c) An instructor who is not also a member of the crew.

[CGD 79-023, 48 FR 51045, Nov. 4, 1983. Redesignated by CGD 83-005, 51 FR 924, Jan. 9, 1986]

46 CFR Ch. I (10-1-90)

§ 173.053 Sailing school vessels.

(a) In addition to the requirements in §§ 173.054 through 173.063, sailing school vessel must comply with the provisions of Subpart A of Part 171 of this subchapter.

(b) In addition to regular passengers for the purpose of complying with §§ 171.070 through 171.073, § 171.080, the following will also be counted as passengers:

(1) Sailing school students.

(2) Sailing school instructors.

(3) Guests.

[51 FR 924, Jan. 9, 1986]

§ 173.054 Watertight subdivision damage stability standards for sailing school vessels.

(a) Each new sailing school vessel which has a mean length greater than 75 feet (22.8 meters) or which carries more than 30 persons must comply with—

(1) Section 171.040(a)(1);

(2) Sections 171.070 through 171.073; and

(3) Section 171.080 for Type II subdivision damage stability.

(b) Each new sailing school vessel which has a mean length of 75 feet (22.8 meters) or less and carries 30 or fewer persons must comply with either—

(1) Section 171.040(a)(1) of Part 171; or

(2) Section 171.040(a)(1), §§ 171.070 through 171.073, and § 171.080.

(c) Each new sailing school vessel which does not carry more than 30 persons must have a collision bulkhead unless it has a mean length of less than 40 feet (12.2 meters) and is used only for protected or partial protected waters service only.

[51 FR 924, Jan. 9, 1986]

§ 173.055 Watertight subdivision damage stability standards for sailing school vessels.

(a) Except as provided in paragraph (c) of this section, an existing sailing school vessel which carries more than 30 persons must be fitted with a collision bulkhead and any additional bulkheads necessary to provide for compartment subdivision.

(b) Except as provided in paragraph (c) of this section, an existing sailing school vessel which carries more than 30 persons must be fitted with a collision bulkhead and any additional bulkheads necessary to provide for compartment subdivision.

(c) Except as provided in paragraph (a) of this section, an existing sailing school vessel which carries more than 30 persons must be fitted with a collision bulkhead and any additional bulkheads necessary to provide for compartment subdivision.

(b) Except as provided in paragraph (c) of this section, an existing sailing school vessel which has a mean length greater than 65 feet (19.8 meters), must be fitted with additional transverse watertight bulkheads necessary to provide one compartment subdivision, when the following Subdivision Numerals are exceeded:

(1) For vessels to be operated on Exposed Waters:

$$L \times N > 4000$$

(2) For vessels to be operated on Partially Protected Waters:

$$L \times N > 4500$$

(3) For vessels to be operated on Protected Waters:

$$L \times N > 5000$$

where L is the mean length and N is the number of persons on board

(c) An existing sailing school vessel which is required to meet a one compartment subdivision standard and has a mean length of 90 feet (27.4 meters) or less may, instead of one compartment subdivision, be fitted with a collision bulkhead and sufficient air tankage or other internal buoyancy to maintain the fully-loaded vessel afloat with positive stability in the flooded condition.

(d) Except as provided in paragraph (e) of this section, an existing sailing school vessel which has a mean length greater than 65 feet (19.8 meters) must be fitted with a collision bulkhead.

(e) On an existing sailing school vessel, operating on protected waters, which has a mean length of 90 feet (27.4 meters) or less with no other requirement for subdivision, the collision bulkhead may be omitted.

(f) An existing sailing school vessel, operating on exposed waters, which has a mean length of 65 feet (19.8 meters) or less and is carrying more than 15 persons, must be fitted with a collision bulkhead.

[51 FR 924, Jan. 9, 1986]

§ 173.056 Collision and other watertight bulkheads.

(a) Collision bulkheads required by this section must comply with the re-

quirements in § 171.085 of this subchapter.

(b) Each sailing school vessel required to meet paragraph (a) of § 173.054 must comply with the machinery space bulkhead requirements in § 171.095 of this subchapter.

[51 FR 924, Jan. 9, 1986]

§ 173.057 Permitted locations for Class I watertight doors.

(a) Class I doors are permitted in any location on a sailing school vessel which has a mean length of 125 feet (38.1 meters) or less.

(b) Class I doors fitted in accordance with § 170.270 of this subchapter shall additionally be marked in two-inch letters "RECLOSE AFTER USE", and be provided with a remote position indicator at the main navigating station of the vessel.

[51 FR 924, Jan. 9, 1986]

§ 173.058 Double bottom requirements.

Each new sailing school vessel which has a mean length greater than 165 feet (50.3 meters) and is certificated for exposed water service must comply with the double bottom requirements in §§ 171.105 through 171.109, inclusive, of this subchapter.

[51 FR 924, Jan. 9, 1986]

§ 173.059 Penetrations and openings in watertight bulkheads.

Penetrations and openings in watertight bulkheads must comply with the requirements in Subpart E of Part 171 of this subchapter.

[51 FR 924, Jan. 9, 1986]

§ 173.060 Openings in the side of a vessel below the bulkhead or weather deck.

(a) Openings in the side of a vessel below the bulkhead or weather deck must comply with the requirements in Subpart F of Part 171 of this subchapter.

(b) In addition to the requirements in paragraph (a) of this section, each sailing school vessel which has a mean length greater than 90 feet must comply with the requirements in § 56.50-95 of Subchapter F of this chapter.

§ 173.061

[51 FR 924, Jan. 9, 1986]

§ 173.061 Watertight integrity above the margin line.

The watertight integrity of each sailing school vessel above the margin line must comply with the requirements in Subpart G of Part 171 of this subchapter.

[51 FR 925, Jan. 9, 1986]

§ 173.062 Drainage of weather deck.

The weather deck of each sailing school vessel must be provided with drainage in accordance with the requirements in Subpart H of Part 171 of this subchapter.

[51 FR 925, Jan. 9, 1986]

§ 173.063 Intact stability requirements.

(a) Except as provided in this section, each sailing school vessel must meet the intact stability requirements in § 171.035 of this subchapter.

(b) In applying the requirements in §§ 170.170 and 171.050 of this subchapter, the value of "T" is equal to the angle of heel at which the deck edge is immersed or $\frac{1}{2}$ of the downflooding angle, whichever is less.

(c) In applying the requirements of § 171.055(d) (1) and (2) of this subchapter—

(1) The value "X" is equal to 0.6 long tons/square foot (9.8 metric tons/square meter).

46 CFR Ch. I (10-1-90)

(2) For a vessel in service on ed or partially protected water, "Y" and "Z" are determined from graphs 173.063 (a) and (b) and applied by the multiplier in 173.063(e).

(3) For a vessel in service on waters, "Y" and "Z" are determined from graphs 173.063 (c) and multiplied by the multiplier in graph 173.063(e).

(4) To convert required number of units of "metric tons/square meter" multiply by 10.94.

(d) Each vessel of the open boat type that is required to comply with the requirements in § 171.035 (d) of this subchapter, may comply with the requirements in graph (e) of this section.

(e) In lieu of complying with the requirements of paragraph (b) of this section, an open boat may be provided with sufficient air tankage or other means of buoyancy to maintain the vessel afloat when the vessel is completely flooded or capsized. If foam is used, it must comply with this paragraph. The foam must be installed in accordance with the requirements in § 170.245 of this chapter.

(f) A sailing school catamaran must meet the intact stability requirements in § 171.057.

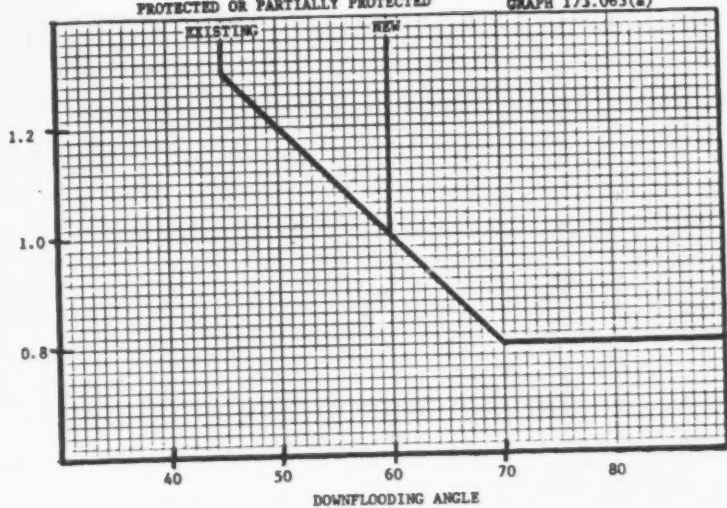
[51 FR 925, Jan. 9, 1986]

PROTECTED OR PARTIALLY PROTECTED

GRAPH 173.063(a)

Y

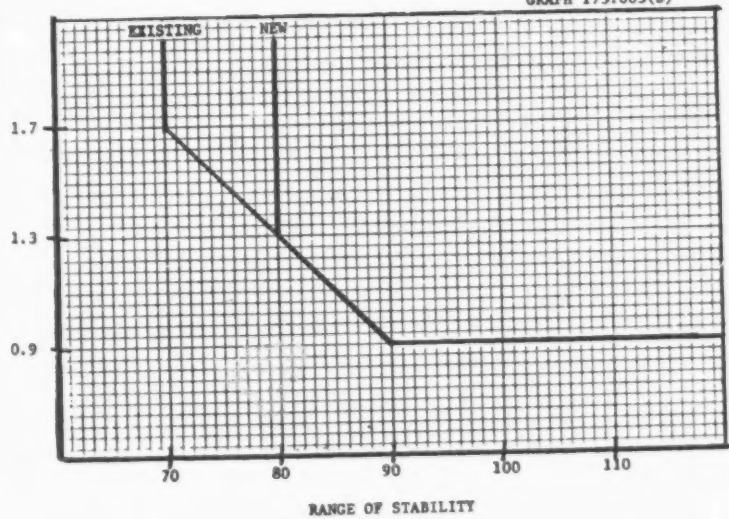
$\frac{\text{TONS}}{\text{SQ FT}}$



GRAPH 173.063(b)

Z

$\frac{\text{TONS}}{\text{SQ FT}}$

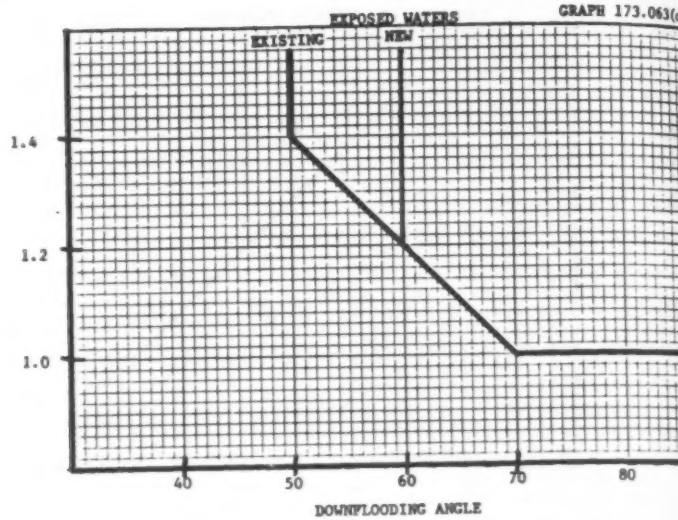


§ 173.063

46 CFR Ch. I (10-1-90 Ed.)

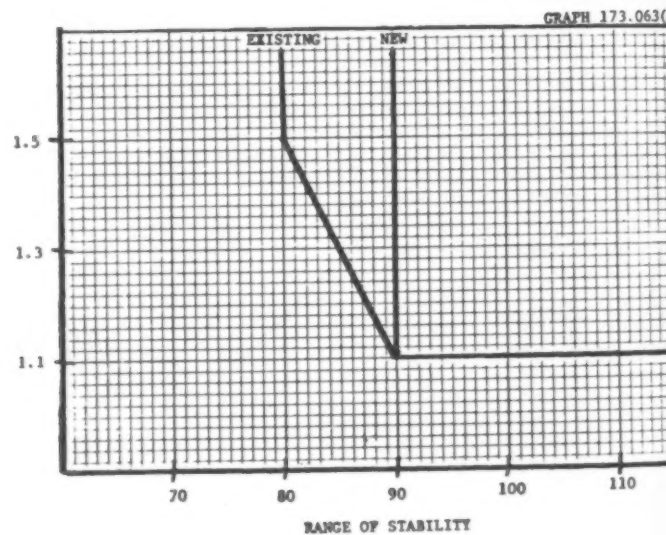
Y

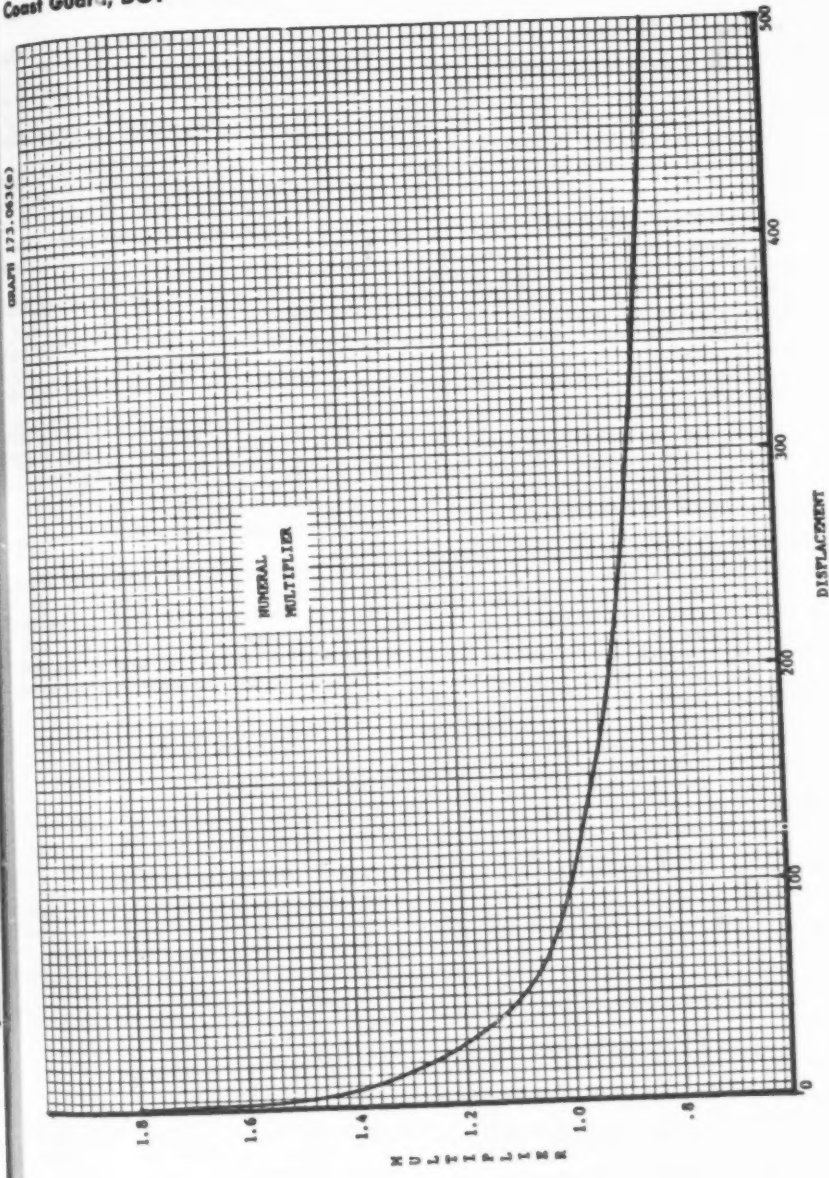
$\frac{\text{TONS}}{\text{SQ FT}}$



Z

$\frac{\text{TONS}}{\text{SQ FT}}$





Subpart D—Oceanographic Research

§ 173.070 Specific applicability.

Each oceanographic vessel, inspected under Subchapter U of this chapter, except a barge that is less than 300 gross tons, must comply with this subpart.

§ 173.075 Subdivision requirements.

(a) Each oceanographic vessel must comply with the subdivision requirements in §§ 171.070, 171.072, and 171.073 of this subchapter as if it were a passenger vessel carrying 400 or less passengers.

(b) Each vessel must have a collision bulkhead.

§ 173.080 Damage stability requirements.

Each oceanographic vessel must comply with § 171.080 of this subchapter as a category Z vessel.

§ 173.085 General subdivision requirements.

Each oceanographic vessel must comply with the following:

(a) Section 171.085(c)(1), (d) and (g) of this subchapter.

(b) Section 171.105 (a) through (g) of this subchapter except that a reduction or elimination of the required inner bottom is allowed if—

(1) The inner bottom would interfere with the mission of the vessel; and

(2) As a result of other design features, the ability of the vessel to withstand side and bottom damage is not reduced.

(c) Section 171.106 of this subchapter.

(d) Section 171.108 of this subchapter.

(e) Section 171.109 of this subchapter.

(f) Section 171.111 of this subchapter.

(g) Section 171.113 of this subchapter.

(h) The collision bulkhead must not be penetrated by more than one pipe that carries liquid to or from the forepeak tank. This pipe must have a screwdown valve that is—

(1) Operative from above the bulkhead deck; and

(2) Attached to the bulkhead inside the forepeak tank.

(i) Section 171.116 (b), (c), and (e) of this subchapter.

(j) Section 171.117(c) of this subchapter.

(k) Each port light in a space located below the freeboard deck, as defined in § 42.13-15(i) of this chapter, or in a space within an enclosed superstructure must be fitted with a hinge inside dead cover.

(l) Section 171.118 (b) and (c) of this subchapter.

(m) Section 171.122 (a) through (d) and (f) of this subchapter.

(n) Section 171.135 of this subchapter.

(o) A ventilation duct or forced draft duct may not penetrate a main transverse watertight bulkhead unless—

(1) The penetration is watertight;

(2) The penetration is located as near the vessel's centerline as possible and

(3) The bottom of the duct is not more than—

(i) 18 inches (45.7 cm) below the bulkhead deck; and

(ii) 4 feet (121.9 cm) above the final waterline after damage determined in § 173.080.

Subpart E—Towing

§ 173.090 General.

This subpart applies to each vessel that is equipped for towing.

§ 173.095 Towline pull criterion.

(a) In each towing condition, each vessel must be shown by design calculations to meet the requirements of either paragraph (b) or (c) of this section.

(b) The vessel's metacentric height (GM) must be equal to or greater than the following:

$$GM = \frac{(N)(P \times D)^{1/2}(s)(h)}{K\Delta(f/B)}$$

where—

N=number of propellers.

P=shaft power per shaft in horsepower (kilowatts).

D=propeller diameter in feet (meters).

that fraction of the propeller circle cylinder which would be intercepted by the rudder if turned to 45 degrees from the vessel's centerline.

vertical distance from propeller shaft centerline at rudder to towing bitts in feet (meters).

displacement in long tons (metric tons).

minimum freeboard along the length of the vessel in feet (meters).

molded beam in feet (meters).

=38 in English units.

=13.93 in metric units.

(c) When a heeling arm curve, calculated in accordance with paragraph (d) of this section, is plotted against the vessel's righting arm curve—

(1) Equilibrium must be reached before the downflooding angle; and

(2) The residual righting energy must be at least 2 foot-degrees (.61 meter-degrees) up to the smallest of the following angles:

(i) The angle of maximum righting arm.

(ii) The downflooding angle.

(iii) 40 degrees.

(d) The heeling arm curve specified in paragraph (c) of this section must be calculated by the following equation:

$$HA = \frac{2(N)(P \times D) \cos(\theta)}{s(h)(\cos \theta)} \quad K\Delta$$

where—

A=heeling arm.

=angle of heel.

P, D, K, s, h, and Δ are as defined in paragraph (b) of this section.

(e) For the purpose of this section, downflooding angle means the static angle from the intersection of the vessel's centerline and waterline in calm water to the first opening that does not close watertight automatically.

(f) For the purpose of this section, at each angle of heel, a vessel's righting arm may be calculated considering either—

(1) The vessel is permitted to trim free until the trimming moment is zero; or

(2) The vessel does not trim as it heels.

PART 174—SPECIAL RULES PERTAINING TO SPECIFIC VESSEL TYPES

Subpart A—General

Sec.

174.005 Applicability.

Subpart B—Special Rules Pertaining to Deck Cargo Barges

174.010 Specific applicability.

174.015 Intact stability.

174.020 Alternate intact stability criterion.

Subpart C—Special Rules Pertaining to Mobile Offshore Drilling Units

174.030 Specific applicability.

174.035 Definitions.

174.040 Stability requirements: general.

174.045 Intact stability requirements.

174.050 Stability on bottom.

174.055 Calculation of wind heeling moment (Hm).

174.065 Damage stability requirements.

174.070 General damage stability assumptions.

174.075 Compartments assumed flooded: general.

174.080 Flooding on self-elevating and surface type units.

174.085 Flooding on column stabilized units.

174.090 Permeability of spaces.

174.100 Appliances for watertight and weathertight integrity.

Subpart D—Special Rules Pertaining to Nuclear Powered Vessels

174.110 Specific applicability.

174.115 Subdivision requirements.

174.120 Damage stability requirements.

174.125 Additional subdivision requirements.

Subpart E—Special Rules Pertaining to Tugboats and Towboats

174.140 Specific applicability.

174.145 Intact stability requirements.

Subpart F—Special Rules Pertaining to Ocean Thermal Energy Conversion Plantships and Floating Facilities

174.150 Specific applicability.

174.155 Stability requirements.

174.160 Normal operating condition.

174.165 Tension tendons tethered facilities.

174.170 Stability test.

§ 174.005

46 CFR Ch. I (10-1-90)

Sec.

Subparts G-H [Reserved]

Subpart I—Hopper Dredges With Working Freeboard Assignments

Sec.

- 174.300 Specific applicability.
- 174.305 Definitions.

CALCULATIONS

- 174.310 General.
- 174.315 Extent and character of damage.
- 174.320 Damage survival.
- 174.325 Equalization.
- 174.330 Jettisoning of spoil.

DESIGN

- 174.335 Watertight doors.
- 174.340 Collision bulkhead.

AUTHORITY: 42 U.S.C. 9118, 9119, 9153; 43 U.S.C. 1333; 46 U.S.C. 3306, 3703, 5115; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGD 79-023, 48 FR 51048, Nov. 4, 1983, unless otherwise noted.

Subpart A—General

§ 174.005 Applicability.

Each of the following vessels must comply with the applicable provisions of this part:

- (a) Deck cargo barge.
- (b) Mobile offshore drilling unit (MODU) inspected under Subchapter IA of this chapter.
- (c) Nuclear powered vessel.
- (d) Tugboat and towboat inspected under Subchapter I of this chapter.
- (e) Ocean Thermal Energy Conversion plantship and floating facility inspected under Subchapter I of this chapter.
- (f) Self-propelled hopper dredge having an assigned working freeboard.

[CGD 79-023, 48 FR 51048, Nov. 4, 1983, as amended by CGD 76-080, 54 FR 36977, Sept. 6, 1989]

Subpart B—Special Rules Pertaining to Deck Cargo Barges

§ 174.010 Specific applicability.

Each barge that carries cargo above the weather deck must comply with this subpart.

§ 174.015 Intact stability.

(a) Except as provided in § 174.015, in each condition of loading and operation, each barge must be shown by design calculations to have a righting arm curve under the righting arm curve, the angle of maximum righting, the downflooding angle, or 40 degrees, whichever angle is smallest, equal to or greater than—

- (1) 15 foot-degrees (4.57 metradegrees) for ocean and Great Lakes winter service; and
- (2) 10 foot-degrees (3.05 metradegrees) for lakes, bays, sounds, and Great Lakes summer service.

(b) For the purpose of this section, downflooding angle means the angle from the intersection of the vessel's centerline and waterline to the first opening that does not close watertight automatically.

§ 174.020 Alternate intact stability criterion.

A barge need not comply with § 174.015 and Subparts C and D of Part 170 of this chapter if it meets the following characteristics:

- (a) The weather deck is watertight.
- (b) The barge's hull proportions are within any one of the ratios in Tables (A) through (D) in Table 174.020.
- (c) The maximum cargo height is 25 feet (9.25 meters) or a value equal to the depth of the barge amidships, whichever is less.

TABLE 174.020

Category	Beam/depth ratio	Draft/length ratio
A.....	3.00 to 3.74	Equal to or less than
B.....	3.75 to 3.99	Equal to or less than
C.....	4.00 to 4.49	Equal to or less than
D.....	4.50 to 6.00	Equal to or less than

Subpart C—Special Rules Pertaining to Mobile Offshore Drilling Units

§ 174.030 Specific applicability.

Each mobile offshore drilling unit (MODU) inspected under Subchapter

IA of this chapter must comply with this subpart.

§ 174.035 Definitions.

(a) For the purpose of this subpart the following terms have the same definitions as given in Subchapter IA of this chapter:

- (1) "Column stabilized unit".
- (2) "Mobile offshore drilling unit".
- (3) "Self-elevating unit".
- (4) "Surface type unit".

(b) For the purpose of this subpart—

(1) "Downflooding" means the entry of seawater through any opening that cannot be rapidly closed watertight, into the hull, superstructure, or columns of an undamaged unit due to heel, trim, or submergence of the unit.

(2) "Downflooding angle" means the static angle from the intersection of the unit's centerline and waterline in calm water to the first opening through which downflooding can occur when subjected to a wind heeling moment (Hm) calculated in accordance with § 174.055.

(3) "Normal operating condition" means a condition of a unit when loaded or arranged for drilling, field transit, or ocean transit.

(4) "Severe storm condition" means a condition of a unit when loaded or arranged to withstand the passage of a severe storm.

§ 174.040 Stability requirements: general.

Each unit must be designed to have at least 2 inches (50mm) of positive metacentric height in the upright equilibrium position for the full range of drafts, whether at the operating draft for navigation, towing, or drilling afloat, or at a temporary draft when changing drafts.

§ 174.045 Intact stability requirements.

(a) Each unit must be designed so that the wind heeling moments (Hm)

and righting moments calculated for each of its normal operating conditions and severe storm conditions, when plotted on GRAPH 174.045, define areas that satisfy the equation:

$$\text{Area (A)} > (K) \times \text{Area (B)}$$

where—

- (1) $K=1.4$ except that if the unit is a column stabilized unit $K=1.3$;
- (2) Area (A) is the area on GRAPH 174.045 under the righting moment curve between 0 and the second intercept angle or the angle of heel at which downflooding would occur, whichever angle is less; and
- (3) Area (B) is the area on GRAPH 174.045 under the wind heeling moment curve between 0 and the second intercept angle or the angle of heel at which downflooding of the unit would occur whichever angle is less.

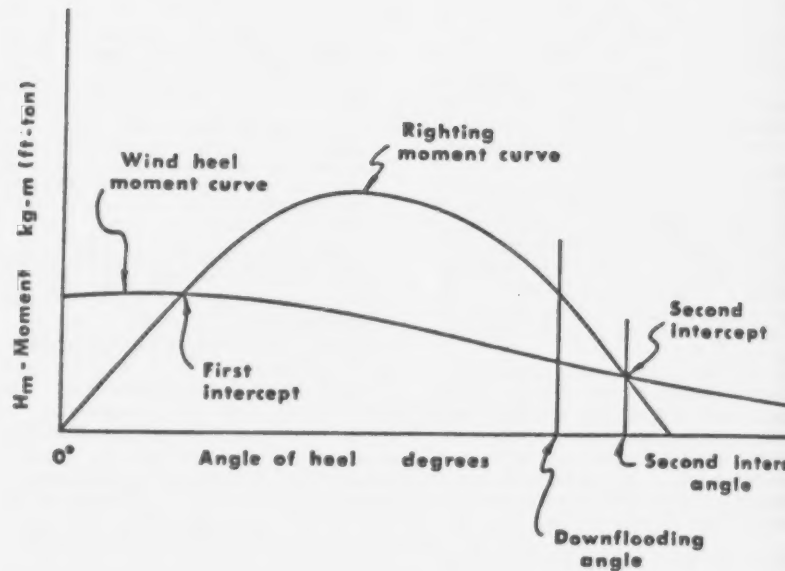
(b) Each righting moment on graph § 174.045 must be positive for all angles greater than 0 and less than the second intercept angle.

(c) For the purposes of this section, openings fitted with the weathertight closing appliances specified in § 174.100(b) are not considered as openings through which downflooding could occur if they can be rapidly closed and would not be submerged below the units' waterline prior to the first intercept angle, except that ventilation intakes and outlets for machinery spaces, crew spaces, and other spaces where ventilation is normally required are considered as openings through which downflooding could occur regardless of location.

(d) Each unit must be designed so that it can be changed from each of its normal operating conditions to a severe storm condition within a minimum period of time consistent with the operating manual required in § 109.121 of this chapter.

GRAPH 174.045

Intact Stability Curves for a Given Normal
Operating or Severe Storm Mode



[CGD 79-023, 48 FR 51048, Nov. 4, 1983, as amended by CGD 83-071, 52 FR 6979, Mar. 1987]

§ 174.050 Stability on bottom.

Each bottom bearing unit must be designed so that, while supported on the sea bottom with footings or a mat, it continually exerts a downward force on each footing or the mat when subjected to the forces of wave and current and to wind blowing at the velocities described in § 174.055(b)(3).

§ 174.055 Calculation of wind heeling moment (Hm).

(a) The wind heeling moment (Hm) of a unit in a given normal operating

condition or severe storm condition is the sum of the individual wind heeling moments (H) calculated for each of the exposed surfaces on the unit; $H_m = \Sigma H$.

(b) Each wind heeling moment must be calculated using the equation

$$H = k(v)^2 (C_h)(C_s)(A)(h)$$

where—

- (1) H = wind heeling moment for an exposed surface on the unit in foot-pounds (gram-meters);
- (2) $k = 0.00338 \text{ lb./ft.}^2 \text{ knots}^2$ ($0.0623 \text{ sec}^2/\text{m}^2$);

- (3) v = wind velocity of—
 (i) 70 knots (36 meters per second) for normal operating conditions.
 (ii) 100 knots (51.5 meters per second) for severe storm conditions.
 (iii) 50 knots (25.8 meters per second) for damage conditions.
 (4) A = projected area in square feet (square meters) of an exposed surface on the unit;
 (5) Ch = height coefficient for "A" from Table 174.055(a);
 (6) Cs = shape coefficient for "A" from Table 174.055(b); and
 (7) h = the vertical distance in feet (meters) from the center of lateral resistance of the underwater hull to the center of wind pressure on "A".

(c) When calculating "A" in the equation described in paragraph (b) of this section—

- (1) The projected area of each column or leg; if the unit has columns or legs, must not include shielding allowances;
 (2) Each area exposed as a result of heel must be included;
 (3) The projected area of a cluster of deck houses may be used instead of the projected area of each individual deck house in the cluster; and
 (4) The projected area of open truss work may be calculated by taking 30% of the projected areas of both the front and back sides of the open truss work rather than by determining the projected area of each structural member of the truss work.

TABLE 174.055(a)—CH VALUES

Feet		Meters		Ch.
Over	Not exceeding	Over	Not exceeding	
0	50	0.0	15.3	1.00
50	100	15.3	30.5	1.10
100	150	30.5	46.0	1.20
150	200	46.0	61.0	1.30
200	250	61.0	76.0	1.37
250	300	76.0	91.5	1.43
300	350	91.5	106.5	1.48
350	400	106.5	122.0	1.52
400	450	122.0	137.0	1.56
450	500	137.0	152.5	1.60
500	550	152.5	167.5	1.63
550	600	167.5	183.0	1.67
600	650	183.0	198.0	1.70
650	700	198.0	213.5	1.72
700	750	213.5	228.5	1.75
750	800	228.5	244.0	1.77
800	850	244.0	259.0	1.79
Above 850.		Above 259		1.80

NOTE: The "Ch" value in this table, used in the equation described in section § 174.055(b), corresponds to the value of the vertical distance in feet (meters) from the water surface at the design draft of the unit to the center of area of the "A" value used in the equation.

TABLE 174.055(b)—Cs VALUES

Shape	Cs
Cylindrical shapes	0.5
Hull (surface type)	1.0
Deckhouse	1.0
Cluster of deckhouses	1.1
Isolated structural shapes (cranes, angles, channels, beams, etc.)	1.5
Under deck areas (smooth surfaces)	1.0
Under deck areas (exposed beams and girders)	1.3
Rig derrick (each face and open truss works)	1.25

NOTE: The "Cs" value in this table, used in the equation described in § 174.055(b), corresponds to the shape of the projected "A" in the equation.

§ 174.065 Damage stability requirements.

(a) Each unit must be designed so that, while in each of its normal operating conditions and severe storm conditions, its final equilibrium waterline would remain below the lowest edge of any opening through which additional flooding could occur if the unit were subjected simultaneously to—

(1) Damage causing flooding described in §§ 174.075 through 174.085; and

(2) A wind heeling moment calculated in accordance with § 174.055(b) using a wind velocity of 50 knots (25.8 meters per second).

(b) Each unit must have a means to close off each pipe, ventilation system, and trunk in each compartment described in § 174.080 or § 174.085 if any portion of the pipe, ventilation system, or trunk is within 5 feet (1.5 meters) of the hull.

174.070 General damage stability assumptions.

For the purpose of determining compliance with § 174.065, the assumptions are made that during flooding and the resulting change in the unit's waterline—

(a) The unit is not anchored or moored; and

(b) No compartment on the unit is ballasted or pumped out to compensate for the flooding described in §§ 174.075 through 174.085.

§ 174.075

§ 174.075 Compartments assumed flooded: general.

The individual flooding of each of the compartments described in §§ 174.080 and 174.085 must be assumed for the purpose of determining compliance with § 174.065 (a). Simultaneous flooding of more than one compartment must be assumed only when indicated in §§ 174.080 and 174.085.

§ 174.080 Flooding on self-elevating and surface type units.

(a) On a surface type unit or self-elevating unit, all compartments within 5 feet (1.5 meters) of the hull of the unit between two adjacent main watertight bulkheads, the bottom shell, and the uppermost continuous deck or first superstructure deck where superstructures are fitted must be assumed to be subject to simultaneous flooding.

(b) On the mat of a self-elevating unit, all compartments of the mat must be assumed to be subject to individual flooding.

§ 174.085 Flooding on column stabilized units.

(a) Watertight compartments that are outboard of, or traversed by, a plane which connects the vertical centerlines of the columns on the periphery of the unit, and within 5 feet (1.5 meters) of an outer surface of a column or footing on the periphery of the unit, must be assumed to be subject to flooding as follows:

(1) When a column is subdivided into watertight compartments by horizontal watertight flats, all compartments in the column within 5 feet (1.5 meters) of the unit's waterline before damage causing flooding must be assumed to be subject to simultaneous flooding.

(2) When a column is subdivided into watertight compartments by vertical watertight bulkheads, each two adjacent compartments must be assumed subject to simultaneous flooding if the distance between the vertical watertight bulkheads, measured at the column periphery, is equal to or less than one-eighth of the column perimeter at the draft under consideration.

(3) When a column is subdivided into watertight compartments by horizontal watertight flats and vertical water-

tight bulkheads, those compartments that are within the bounds described in paragraph (a)(2) of this section within 5 feet (1.5 meters) of the unit's waterline before damage causing flooding must be assumed to be subject to simultaneous flooding.

(b) Each compartment in a foot must be assumed to be subject to individual flooding when any part of the compartment is within 5 feet (1.5 meters) of the unit's waterline before damage causing flooding.

§ 174.090 Permeability of spaces.

When doing the calculations required in § 174.065—

(a) The permeability of a flooded space, other than a machinery space, must be as listed in Table 174.090;

(b) Calculations in which a machinery space is treated as a flooded space must be based on an assumed machinery space permeability of 85% unless the use of an assumed permeability of less than 85% is justified in detail.

TABLE 174.090—PERMEABILITY

Spaces and tanks	Permeability (percentage)
Storeroom spaces.....	60.
Accommodation spaces.....	95.
Voids.....	95.
Consumable liquid tanks.....	95 or 0.
Other liquid tanks.....	95 or 0.

¹ Whichever results in the more disabling condition.
² If tanks are partially filled, the permeability must be determined from the actual density and amount of liquid carried.

§ 174.100 Appliances for watertight and weathertight integrity.

(a) Appliances to insure watertight integrity include watertight doors, hatches, scuttles, bolted manhole covers, or other watertight closures for openings in watertight decks and bulkheads.

(b) Appliances to insure weathertight integrity include weathertight doors and hatches, closures for pipes, ventilators, ventilation inlets and outlets, and closures for other openings in deckhouses and superstructures.

(c) Each internal opening equipped with appliances to insure watertight

integrity that is used intermittently during operation of the unit while afloat must meet the following:

(1) Each door, hatch, and scuttle must—

(i) Be remotely controlled from a normally manned control station, and be operable locally from both sides of the bulkhead; or

(ii) If there is no means of remote control there must be an alarm system that signals whether the appliance is open or closed both locally at each appliance and in a normally manned control station.

(2) Each closing appliance must remain watertight under the design water pressure of the watertight boundary of which it is a part.

(d) Each external opening fitted with an appliance to insure weather-tight integrity must be located so that it would not be submerged below the final equilibrium waterline if the unit is subjected simultaneously to—

(1) Damage causing flooding described in §§ 174.075 through 174.085; and

(2) A wind heeling moment calculated in accordance with § 174.055 using a wind velocity of 50 knots (25.8 meters per second).

(e) If a unit is equipped with sliding watertight doors, each sliding watertight door must be approved under Subpart 163.001 of Subchapter Q of this chapter.

Subpart D—Special Rules Pertaining to Nuclear Powered Vessels

§ 174.110 Specific applicability.

(a) This part applies to nuclear vessels.

(b) Nuclear vessels are required to comply with Part 37, 79, or 99 of this chapter.

§ 174.115 Subdivision requirements.

Each vessel must comply with the subdivision requirements in §§ 171.070, 171.072, and 171.073 of this subchapter as if it were a passenger vessel carrying more than 1000 passengers.

§ 174.120 Damage stability requirements.

Each vessel must comply with § 171.080 of this subchapter as a category Y vessel.

§ 174.125 Additional subdivision requirements.

Each vessel must comply with the following:

(a) Sections 171.085, 171.090, 171.095, and 171.100 of this subchapter as if it were a passenger vessel of 100 gross tons or more with Type II subdivision.

(b) Sections 171.105, 171.106, 171.108, and 171.109 of this subchapter as if it were a passenger vessel that is—

(1) Greater than 250 feet (76 meters) in LBP;

(2) Greater than 100 gross tons; and

(3) In ocean service.

(c) Sections 171.111 through 171.113 of this subchapter.

(d) Sections 171.116 through 171.118 of this subchapter.

(e) Sections 171.122 and 171.135 of this subchapter.

Subpart E—Special Rules Pertaining to Tugboats and Towboats

§ 174.140 Specific applicability.

Each tugboat and towboat inspected under Subchapter I of this chapter must comply with this subpart.

§ 174.145 Intact stability requirements.

(a) In each condition of loading and operation, each vessel must be shown by design calculations to meet the requirements of paragraphs (b) through (e) of this section.

(b) The area under each righting arm curve must be at least 16.9 foot-degrees (5.15 meter-degrees) up to the smallest of the following angles:

(1) The angle of maximum righting arm.

(2) The downflooding angle.

(3) 40 degrees.

(c) The area under each righting arm curve must be at least 5.6 foot-degrees (1.72 meter-degrees) between the angles of 30 degrees and 40 degrees, or between 30 degrees and the downflooding angle if this angle is less than 40 degrees.

(d) The maximum righting arm shall occur at a heel of at least 25 degrees.

(e) The righting arm curve must be positive to at least 60 degrees.

(f) For the purpose of this section, at each angle of heel, a vessel's righting

§ 174.150

arm may be calculated considering either—

(1) The vessel is permitted to trim free until the trimming moment is zero; or

(2) The vessel does not trim as it heels.

Subpart F—Special Rules Pertaining to Ocean Thermal Energy Conversion Plantships and Floating Facilities

§ 174.150 Specific applicability.

This subpart applies to each Ocean Thermal Energy Conversion plantship and floating facility that must meet Part 106 of this chapter.

§ 174.155 Stability requirements.

(a) Except as modified in this subpart, each plantship and floating facility must meet the following requirements in this subchapter:

(1) Section 170.085.

(2) Section 170.090.

(3) Section 170.120.

(4) Sections 170.174 through 170.190.

(5) Sections 174.030 through 174.100.

(b) Compliance with the remaining provisions in this subchapter is not required.

§ 174.160 Normal operating condition.

For the purpose of this subpart, "Normal operating condition" means a condition of the plantship or floating facility when loaded and arranged for producing energy or when in ocean transit.

§ 174.165 Tension tendon tethered facilities.

Each floating facility of the tension tendon tethered configuration must be designed so that it continually maintains a tension on each tendon when subjected to the forces described in § 174.055 of this subchapter.

§ 174.170 Stability test.

The stability test provided for in Subpart F of Part 170 of this subchapter is not required for a floating facility or plantship if it is shown to the satisfaction of the Commandant that, because of its configuration, testing of the facility or plantship is not practi-

46 CFR Ch. I (10-1-90 Edition)

cable and the facility or plantship inherent adequate stability by design.

Subparts G-H [Reserved]

Subpart I—Hopper Dredges With Working Freeboard Assignment

SOURCE: CGD 76-080, 54 FR 36977, Sep. 1989, unless otherwise noted.

§ 174.300 Specific applicability.

This subpart applies to each propelled hopper dredge for which working freeboard assignment is sought under part 44, subpart C of this chapter.

§ 174.305 Definitions.

Hopper dredge has the same meaning as contained in § 44.310 of this chapter.

Length has the same meaning as contained in § 42.13-15(d) of this chapter.

Working freeboard has the same meaning as contained in § 44.310 of this chapter.

CALCULATIONS

§ 174.310 General.

(a) Each hopper dredge under subpart must be shown by design calculations based on the assumptions under paragraphs (b), (c), (d), and (e) of this section, that it meets—

(1) The requirements in §§ 170.170, 170.173, and 170.300 of this chapter for each condition of loading and operation; and

(2) The survival conditions in § 174.320 in each condition of loading and operation assuming the character and extent of damage specified in § 174.315.

(b) The calculations required by paragraph (a) of this section must assume:

(1) The hoppers are full of seawater.

(2) The permeability of floating spaces is as provided by Table 174.325.

(3) The equalization provisions in § 174.325; and

(4) The jettisoning provisions in § 174.330.

(c) The calculations required by paragraph (a) of this section must take into account a sur-

cient number of loading conditions to identify the condition in which the vessel is least stable, including, but not limited to, the most severe loading condition, and the:

(1) Specific gravity of the dredge spoil, from 1.02 up to and including the maximum required by paragraph (e)(1) of this section; and

(2) Draft, up to and including the draft corresponding to the working freeboard for the full range of trim.

(d) The calculations required by this section for a dredge with open hoppers may include spillage of spoil from the hopper resulting from changing the angle of heel and trim.

(e) The following assumptions must be made when doing the calculations required by this section:

(1) Dredged spoil in the hopper is a homogeneous liquid with a maximum specific gravity for the areas of operation.

(2) When calculating the vessel's righting arm, it is assumed at each angle of heel that the vessel trims free and the trimming moment is zero.

TABLE 174.310—PERMEABILITY OF FLOODABLE SPACES

Spaces and tanks	Permeability
Stowrooms.....	0.60
Accommodation spaces.....	0.95
Consumable liquid tanks.....	0.00 or 0.95—whichever results in the more disabling condition.
Machinery space.....	0.85—unless otherwise supported by calculations.
Cargo tanks.....	Determined from the actual density and amount of liquid carried in the tank.

§ 174.315 Extent and character of damage.

(a) The calculations required by § 174.310 must show that the dredge can survive damage at any location along the length of the vessel including at a transverse bulkhead in accordance with paragraph (b) of this section.

(b) The calculations required by paragraph (a) of this section must assume the most disabling side penetration with the damage collision penetration provided by Table 174.315, except that if the most disabling damage collision penetrations would

be less than those provided by Table 174.315, the smaller damage collision penetration must be assumed.

TABLE 174.315—EXTENT OF DAMAGE COLLISION PENETRATION

Longitudinal extent.....	$0.495L^{2/3}$ or 47.6 feet. [$(\frac{1}{3})L^{2/3}$ or 14.5 meters] whichever is less.
Transverse extent ¹	$B/5$ or 37.7 feet (11.5 meters), whichever is less.
Vertical extent.....	From the base line upward without limit.

¹ Damage applied inboard from the vessel's side at a right angle to the centerline at the draft corresponding to the working freeboard assigned under subchapter E of this chapter.

§ 174.320 Damage survival.

A hopper dredge survives assumed damage if it meets the following conditions:

(a) The maximum angle of heel in each stage of flooding must not exceed 30 degrees or the angle of downflooding whichever is less.

(b) The final waterline, taking into account sinkage, heel, and trim, must be below the lowest edge of each opening through which progressive flooding may take place.

(c) The righting arm curve calculated after damage must:

(1) Have a minimum positive range of 20 degrees beyond the angle of equilibrium; and

(2) Reach a height of at least 4 inches (100mm) within the 20 degree positive range.

(d) Each opening within, or partially within, the 20 degree range beyond the angle of equilibrium must be weathertight.

(e) After flooding or equalization as allowed by § 174.325, the hopper dredge's metacentric height must be at least 2 inches (50mm) when the dredge is in an upright position.

§ 174.325 Equalization.

When doing the calculations required by § 174.310 of this subpart—

(a) Equalization arrangements requiring mechanical aids, such as valves, may not be assumed to be ef-

§ 174.330

fective in reducing the angle of heel; and

(b) Spaces joined by ducts may be assumed to be common spaces only if equalization takes place within 15 minutes after flooding begins.

§ 174.330 Jettisoning of spoil.

(a) When doing the calculations required by § 174.310 for a hopper dredge with bottom doors, it may be assumed that the spoil is jettisoned immediately after damage and that the bottom doors remain open if:

(1) The bottom doors are designed so that they may be fully opened from:

(i) The closed position within two minutes even if the main power source is lost or the bottom door actuating mechanism is damaged; and

(ii) The navigating bridge;

(2) The discharge area through the bottom doors is equal to or greater than 30 percent of the maximum cross sectional area of the hopper measured in a plane parallel to the waterline; and

(3) Asymmetrical jettisoning of the spoil is impossible.

(b) When doing the calculations required by § 174.310 for a hopper dredge with a split hull, it may be assumed that the spoil is jettisoned immediately after damage if—

(1) The hull is designed so that—

(i) The complete separation is effected within two minutes even if the main power source is lost or the actuating means is damaged; and

(ii) The actuating means can be operated from the navigating bridge;

(2) It is shown to the Commanding Officer, Marine Safety Center, either

46 CFR Ch. I (10-1-96)

by calculations or by operation that the hulls can separate sufficiently to allow the dredged material to be dumped without bridging; and

(3) Asymmetrical jettisoning of spoil is impossible.

DESIGN

§ 174.335 Watertight doors.

(a) Each hopper dredge must have sliding watertight doors (Class 1) approved under subpart 163.00 of chapter I of the Code of Federal Regulations if the sill for the door is—

(1) Installed below the bottom deck; and

(2) Less than 24 inches above the final waterline as shown by the calculations required by § 174.310 damage condition up to and including the maximum amount of damage.

(b) Each hopper dredge must have sliding watertight doors (Class 1) approved under subpart 163.00 of chapter I of the Code of Federal Regulations, or quick acting hinge tight doors (Class 1) approved under the same Subpart if the sill of the watertight door is—

(1) Installed below the bottom deck; and

(2) Greater than 24 inches above the final waterline as shown by the calculations required by § 174.310 damage condition up to and including the maximum amount of damage.

§ 174.340 Collision bulkhead.

Each hopper dredge must have a collision bulkhead that is located within 5 percent of the length from the forward perpendicular.

INDEX

SUBCHAPTER S—SUBDIVISION AND STABILITY

A

Part, subpart or section

Addresses:	
Material incorporated by reference.....	170.015
Merchant marine technical offices.....	170.100
Aft peak bulkhead, passenger vessels.....	171.090
Alterations.....	170.001(b), 170.005
Auxiliary sailing vessels:	
Defined.....	170.055(a)
Large passenger vessels.....	171.055
Small passenger vessels.....	171.035
Weather criterion for.....	170.170(c)

B

Ballast, fixed. (See Fixed ballast.)	
Barges:	
Deck cargo.....	Part 174, Subpart B
Definitions.....	170.055(b), (o), (q)
Large passenger.....	171.045
Oceanographic research.....	173.070
Small passenger.....	171.020
Tank. (See Tank barges.)	
Weather criterion for.....	170.160
Bulk cargo vessels, special requirements for.....	Part 172
Buoyancy:	
Air tanks.....	171.070(d), 171.095(c)
Foam flotation material.....	170.245
Internal.....	171.070(d), 171.095(c)
Standards of flooding.....	171.017

C

Calculations:	
Samples of, in stability booklet.....	170.110(d)
Submittal of.....	170.090
Stability text results.....	170.175(a)
Catamarans.....	171.035(b), 171.057
Center of gravity:	
Determination of.....	Part 170, Subpart F
During simplified stability test.....	171.030(c)(4)
Estimated position on tank vessels.....	170.200
In stability booklet.....	170.110(d)
Subchapter O barges.....	172.090(b)
Tanks.....	170.075(a)(5)
Virtual increase of.....	Part 170, Subpart I
Collision bulkhead:	
Oceanographic research vessels.....	173.075, 173.085
Passenger vessels.....	170.040, 171.060, 171.065, 171.070, 171.085

Consumable liquids:	
Effect on stability calculations.....	170.285
In lightweight.....	1
Cranes:	
Data required.....	
Requirements for vessels with.....	Part 173, St
Cross curves, required.....	170.0
Cross-flooding:	
Instructions to the Master.....	171.11
Liquefied gas carriers, system standards.....	17
Passenger vessels, system standards.....	17
Subchapter O tankships, system standards.....	17

D

Damage stability:	
Liquefied gas carriers, local damage.....	
Liquefied gas carriers, major damage.....	
MODU's, standards for.....	
Nautical school ships, standards for.....	173.055
Nuclear powered vessels, standards for.....	
Oceanographic research vessels, standards for.....	
Oil tankers, standards for.....	
OTEC facilities, standards for.....	
Passenger vessels:	
Cockpits.....	171.1
Types I and II.....	
Types III.....	
Well decks.....	171.1
Subchapter D tank barges carrying cargoes other than oil.....	
Subchapter O barges, standards for.....	
Subchapter O tankships, standards for.....	
Dangerous cargoes.....	Part 172, Subparts
Dead covers:	
Oceanographic research vessels, required.....	17
Passenger vessels, required.....	171.117, 171.119(a)(2), 17
Deadweight surveys.....	17
Deck cargo barges. (See Barges.)	
Definitions:	
Concerning a vessel.....	
General terms.....	
Pertaining to lifting.....	
Pertaining to liquefied gas carriers.....	
Pertaining to MODU's.....	
Pertaining to passenger vessels.....	
Pertaining to Subchapter O tankships.....	
Discontinuous bulkhead deck, passenger vessels.....	17
Discontinuous weather deck.....	17
Double bottoms, passenger vessels:	
Manholes in.....	
Permeability of.....	171.0
Required.....	
Watertight floors in.....	
Wells in.....	
Downflooding:	
Angle.....	17
Deck cargo barges.....	

Index, Parts 170—174

Defined (except MODU's).....	170.055(e)
Lifting vessels.....	173.020(b)
Liquefied gas carriers.....	172.195
Mobile offshore drilling units (MODUs):	
Considered.....	174.045
Defined.....	174.035(b)
Oil tankers.....	170.055(f)
Sailing passenger vessels.....	171.055
Subchapter O barges.....	172.090
Subchapter O tankships.....	172.150
Tugboats and towboats.....	174.145
Vessels of unusual proportion and form.....	170.173
Vessels which tow.....	173.095
Draft marks.....	170.075(a)(6), 170.180(e)
Drainage of weather decks.....	Part 171, Subpart H
Deck cargo barges.....	Part 174, Subpart B

E

Equalization. (See Cross-flooding.)	
Equivalent plane bulkhead, passenger vessels:	
Defined.....	171.010(c)
Required:	
Type I subdivision.....	171.067(f)
Type II subdivision.....	171.073(c)
Equivalents.....	170.010
Estimated lightweight vertical center of gravity.....	170.200
Existing vessels.....	170.001(b)

F

Ferry:	
Collision bulkheads.....	171.040(d), 171.060(d)
Defined.....	171.010(d)
Intact stability during loading.....	171.030(g)
Fixed ballast.....	170.055(l), 170.110(d)(14), 170.235
Floodable length:	
Curves required.....	170.090(b)(4)
Defined.....	171.010(e)
Passenger vessels:	
Simplified—small passenger vessels.....	171.043(a)
Standards, Type I.....	171.065
Standards, Type II.....	171.070
Standards, Type III.....	171.075
Floors, watertight—in double bottoms.....	171.109
Foam flotation.....	170.245, 171.070(d), 171.095(c)
Foreign vessels.....	170.001(a)(2)
Freeboard:	
Allowable heeling limits, general.....	170.170(a), 171.030(e)–(h)
Passenger vessels, effective.....	171.043
Freeing ports:	
Minimum Area.....	171.150
Required.....	171.135
Free surface:	
Instructions concerning:	
Counterballasting.....	170.125(b)(1)
Stability booklet.....	170.110(d)(6)

Subchapter O tank barges, assumption.....	172.007
Treatment of, general.....	Part 170, Subpart

G

Grain in bulk.....	170.098, Part 172, Subpart
"Grandfathering".....	170.001

H

Hazardous liquids.....	Part 172, Subparts
Hopper barges:	
Subchapter D cargoes other than oil.....	172.00
Subchapter O cargoes.....	172.100, 172.11
Hydrostatic curves (curves of form), required.....	170.075(a)(3), 170.100(d)

I

Inclining experiments. (See Stability test.)	
Incorporation by reference:	
General.....	170.02
IMO Resolution A.265(VIII).....	170.135, 171.075, 171.08
MIL-P-21929B.....	170.245(b)
Intact stability:	
Deck cargo barges.....	174.015, 174.02
Large passenger vessels:	
Catamarans.....	171.07
Passenger heel.....	171.08
Sailing.....	171.09
Lifting vessels.....	173.020, 173.02
Liquefied gas carriers.....	172.15
Mobile offshore drilling units (MODUs).....	174.04
Passenger vessels:	
Cockpits.....	171.145(e)
Well decks.....	171.150(b)
Small passenger vessels:	
General.....	171.03
Sailing.....	171.03
Subchapter O barges.....	172.090, 172.09
Tugboats and Towboats.....	174.16
Vessels of unusual proportion and form.....	170.170(d), 170.17
Weather Criterion.....	170.160, 170.17
International voyage:	
Passenger vessels:	
Aft peak bulkhead required.....	171.000
Defined.....	171.010(g), 171.01
Double bottoms required for.....	171.105
Shaft tunnels.....	171.100
Special considerations.....	171.00
Standards.....	171.04
Subdivision requirements.....	170.265(d)
Watertight door requirements.....	170.265(d)

L

Large Passenger vessels.....	Part 171, Subpart
Lifting:	
Data submittal requirements.....	170.00

ating information requirements.....	170.125
ards.....	Part 173, Subpart B
eight:	
ed.....	170.055(i)
ation required, stability booklet.....	170.110(d)(1)
mination of.....	Part 170, Subpart F
rawing required.....	170.075(a)(2), 170.180(a)
ed flammable gas, barges.....	Part 172, Subpart C
ed gas carriers.....	Part 172, Subpart G
arriers. See Liquefied gas carriers.)	
ne:	
ificate, stability information on.....	170.110(e), 170.120(b)
th, defined.....	170.055(h)(5)
required:	
o space watertight doors.....	170.275(b)
lights below the bulkhead deck.....	171.116(f)(4)

M

ery space bulkhead, passenger vessels.....	171.095
ransverse watertight bulkhead.....	170.055(j)
les, passenger vessels:	
ole bottoms.....	171.108
ibited locations.....	171.111(h)
a line:	
enger vessels:	
tankage or internal buoyancy.....	171.070(d)(2)
ad covers required on port lights, below.....	171.117(a)
cation of.....	171.015
cation of openings.....	171.111(f), (g)
enings in trunks.....	171.113(c)(2)
pped bulkheads.....	171.067(b)(3)
emergence of.....	171.017, 171.080(d)(3), 171.100(b)
ume below.....	Tables 171.065(a), 171.066, 171.068
ume of passenger spaces above.....	171.065(b)
stertight integrity above.....	Part 171, Subpart G
head:	
rm flotation material.....	170.245(b)(3)
stertight doors.....	170.270(b)
ry specifications, MIL-P-21929B.....	170.015(b), 170.245(b)
e offshore drilling units (MODU's):	
ating information required.....	170.130
ility information required.....	170.110(a)
ards for.....	174.005(b), Part 174, Subpart C

N

al school ships, standards.....	171.001(b), 173.001(b), Part 173, Subpart C
ar powered vessel, standards.....	171.001(b), 174.005(c), Part 174, Subpart D

O

ographic vessel, standards.....	171.001(b), 173.001(c), Part 173, Subpart D
bulk, standards for vessels carrying.....	172.005(c), Part 172, Subpart D
ngs:	
ed by weathertight covers:	
uefied gas carriers.....	172.195
bble offshore drilling units.....	174.045(c)

Oil tankers.....	172.065(e)
Subchapter O tankships.....	172.150
Downflooding through:	
General.....	170.055(e), (f)
Mobile offshore drilling units.....	174.035(b), 174.065(a)
Subchapter O barges.....	172.090(d)
Sailing passenger vessels.....	171.030(f)
Mobile offshore drilling units:	
Closures for.....	174.100
Watertight, closed automatically.....	174.015(b)
Watertight, closed rapidly.....	174.040
Passenger vessels:	
Cockpit openings.....	171.145(a)(2)
Collision bulkhead.....	171.085
Effect on effective freeboard.....	171.043(b)
Special consideration, exposed weather decks.....	171.122(c)
Vessel sides.....	Part 171, Subpart F
Watertight bulkheads.....	Part 171, Subpart F
Watertight, closed automatically:	
Mobile offshore drilling units.....	174.015(b)
Towing vessels.....	173.090(e)
Operating manual.....	170.130
OTEC facilities.....	174.005(e), Part 174, Subpart F

P

Passenger vessels, standards.....	Part 170
Penetrations. <i>See</i> Openings.)	
Permeability	
Calculation of, Type I subdivision.....	171.060
Damage stability:	
Liquefied gas carriers.....	172.185
Mobile offshore drilling units.....	174.090
Oil tankers.....	172.065(c)
Passenger vessels.....	171.080(c)
Subchapter O tankships.....	172.140
Defined.....	170.055(d)
Uniform average permeability:	
Type I subdivision.....	Table 171.080
Type II subdivision.....	171.070
Plans:	
Approval:	
General.....	Part 170, Subpart C, 170.100
Required.....	170.070
Specific.....	170.080
Submittal of.....	170.100, 170.100
Port lights.....	171.110

R

Repairs:	
General.....	170.001(b), 170.065
In way of fixed ballast.....	170.235(b)
Roll stabilization tanks.....	170.285
Rudders, towline pull criterion.....	173.045

S

vessels:	
ed.....	170.055(a), (1)
stability standards:	
amarans.....	171.057
ge passenger vessels.....	171.055
ill passenger vessels.....	171.035
ner criterion.....	170.170(c)
ships. See Nautical school ships.)	
ower, towline pull criterion.....	173.095
nnels:	
ssenger vessels.....	171.100, 171.106(c)
rtight doors in.....	170.260(d)
nternational voyages, vessels on:	
3 doors.....	170.265(d)(1)
ed.....	171.010(1)
le bottoms not required.....	171.105(h)(2)
al considerations.....	171.068
rts, passenger vessels.....	171.118
essel, stability test dispensed with.....	170.175(c)
ssenger vessels, standards.....	Part 171
y booklets:	
nts of.....	170.110
g vessels, additional information.....	170.125
ission and approval required.....	170.080
ls with Type III subdivision, additional information.....	170.135
y letters:	
u of stability booklet.....	170.110(e)
ired.....	170.120
y test:	
ral.....	170.175
mation required before test.....	170.085
and information required at test.....	170.180
rations for test.....	170.185
lified test, small passenger vessels.....	171.030, 171.035
cedure, modification of.....	170.190
ubes, passenger vessels.....	171.100
ision:	
ear powered vessels, requirements.....	174.115, 174.125
nographic vessels.....	173.075, 173.085
nger vessels:	
ditional requirements.....	Part 171, Subpart D
ulations:	
ype I.....	171.065, 171.066, 171.067, 171.068
ype II.....	171.070, 171.072, 171.073
ype III.....	171.075
uirements, large passenger vessels.....	171.060
uirements, small passenger vessels.....	171.040
unks, effect of.....	171.113(b)(3)
ision load line (draft), passenger vessels:	
pits.....	171.145(e), (f)
d cover locations.....	171.117(b)
est, defined.....	171.010(b)
ings in hull, small passenger vessels.....	171.119(a)
light locations.....	171.116(b)(2)

Transverse damage extent, relationship to.....	171.065(h)(2), Table 171.065
Ventilators and side port locations.....	171.118
Superstructures:	
Buoyancy of:	
Liquefied gas carriers.....	172.195
Oil tankers.....	172.065
Subchapter O tankships.....	172.195
Integrity of, mobile offshore drilling units.....	174.100
Points of downflooding in:	
General.....	170.055
Mobile offshore drilling units.....	174.035(b)(1)
Port lights in, oceanographic vessels.....	173.085
Windage area of, small passenger vessels.....	171.030

T

Tank barge:	
Assumed center of gravity for.....	170.200(b)(2)
Carrying oil in bulk.....	Part 172, Subpart D
Carrying Subchapter D cargoes other than oil.....	Part 172, Subpart C
Carrying Subchapter O cargoes.....	Part 172, Subpart E
Defined.....	170.055
Tank vessel:	
Assumed center of gravity.....	170.200
Defined.....	170.055
Standards for.....	Part 172, Subparts C, D, E, F, G
Tests:	
Foam flotation material.....	170.265
Passenger vessels:	
Operational, sailing vessels.....	171.035
Simplified stability test, small passenger vessels.....	171.030, 171.035
Stability.....	170.085, Part 170, Subpart F
Watertight doors.....	170.270
Towboats. See Towing.)	
Towing, standards for.....	173.001(d), Part 173, Subpart E, 174.005(d), Part 174, Subpart E
Towline pull criterion.....	173.085
Tugboats. (See Towing.)	

U

Unusual proportion and form, vessels of.....	170.170
--	---------

V

Ventilators, automatic—passenger vessels.....	171.118
---	---------

W

Watertight bulkheads:	
Doors, standards for.....	171.122, 171.124, Part 170, Subpart E
Liquefied gas carriers.....	172.175, 172.195
Mobile offshore drilling units.....	174.080, 174.085
Oceanographic vessels, ducts through.....	173.085
Oil tankers.....	172.065
Passenger vessels:	
Above weatherdeck.....	171.122

, Parts 170—174

Large passenger vessels, requirements...	171.065, 171.067, 171.068, 171.070, 171.073
Machinery space.....	171.095
Penetrations of.....	Part 171—Subpart E
Small passenger vessels, requirements.....	171.040, 171.043
Watertight floors.....	171.109
Subchapter D barges not carrying oil.....	172.050
Subchapter O barges.....	172.104
Subchapter O tankships.....	172.133(d), 172.150
Watertight doors. (See Watertight bulkheads.)	
Other criterion.....	Part 170, Subpart E
Heeling moment:	
Small passenger vessels.....	171.030(d), 171.035(g)
DDU's.....	174.035(b)(2), 174.045, 174.055, 174.065(a)(2), 174.100(d)(2)

SUBCHAPTER T—SMALL PASSENGER VESSELS (UNDER 100 GROSS TONS)

PART 175—GENERAL PROVISIONS

Subpart 175.01—Authority

Sec.

- 175.01-1 General.
175.01-3 OMB control numbers assigned pursuant to the Paperwork Reduction Act.

Subpart 175.05—Application

- 175.05-1 Applicability to United States vessels.
175.05-2 Applicability to offshore supply vessels.
175.05-3 Applicability to foreign vessels.
175.05-5 Specific application noted in text.
175.05-15 Gross tonnage as a criterion for requirements.

Subpart 175.07—Load Lines

- 175.07-1 Load lines required.

Subpart 175.10—Definitions of Terms Used in This Subchapter

- 175.10-1 Approved.
175.10-2 Approved type.
175.10-3 Coastwise.
175.10-5 Commandant.
175.10-7 Coast Guard District Commander.
175.10-9 Ferry.
175.10-11 Great Lakes.
175.10-13 Headquarters.
175.10-15 Master.
175.10-17 Lakes, bays, and sounds.
175.10-19 Length.
175.10-21 Marine inspector or inspector.
175.10-23 Non-self-propelled vessel.
175.10-25 Ocean.
175.10-26 Officer in Charge, Marine Inspection.
175.10-27 Passenger.
175.10-28 Passengers for hire, carriage of.
175.10-29 Pilothouse control.
175.10-31 Recognized classification society.
175.10-33 Rivers.
175.10-36 Sailing vessel.
175.10-37 Vessel.
175.10-38 Auxiliary sailing vessel.
175.10-40 Offshore supply vessel.

Subpart 175.15—Equivalents

- 175.15-1 Conditions under which equivalents may be used.

Sec.

Subpart 175.20—Administrative Procedures

- 175.20-1 Assignment of marine inspector.
175.20-5 Notice of deficiencies and requirements.

Subpart 175.25—Special Consideration

- 175.25-1 By Officer in Charge, Marine Inspection.

Subpart 175.27—Adoption of Standards and Specifications

- 175.27-1 General.
175.27-5 American Boat and Yacht Council, Inc. (ABYC).
175.27-20 Yacht Safety Bureau (YSB).

Subpart 175.30—Appeals

- 175.30-1 Right of appeal.

Subpart 175.35—Special Provisions

- 175.35-1 Existing offshore supply vessels.

AUTHORITY: 46 U.S.C. 3306, 3703, 5111, 8105; 49 U.S.C. App. 1804; 49 CFR 1.45, 1.48; § 175.01-3 also issued under the authority of 44 U.S.C. 3507.

SOURCE: CGFR 60-54, 25 FR 9315, Sept. 29, 1960, unless otherwise noted.

Subpart 175.01—Authority

§ 175.01-1 General.

(a) The regulations in this subchapter are prescribed by the Commandant of the Coast Guard to carry out the intent and purpose of Title 46, U.S. Code, sections 3301, 3302, 3307, 7101 and 8101, which require the inspection and certification of certain vessels of less than 100 gross tons carrying freight for hire or more than six passengers.

(b) *S and L:* Where other laws are applicable to vessels inspected under this subchapter, appropriate references following certain regulations are made to show that such regulations interpret or apply such laws.

[CGFR 69-116, 35 FR 6862, Apr. 30, 1970, as amended by CGD 81-059, 52 FR 38457, Oct. 16, 1987, and CGD 81-059, 54 FR 132, Jan. 4, 1989]

Guard, DOT

§ 175.05-1

1-3 OMB control numbers assigned pursuant to the Paperwork Reduction Act.

Purpose. This section collects and displays the control numbers assigned for information collection and recording requirements in this subchapter of the Office of Management and Budget (OMB) pursuant to the Paperwork Reduction Act of 1980 (44 U.S.C. 3507(f)). The Coast Guard intends this section comply with the requirements of 44 U.S.C. 3507(f) which requires that agencies display a current control number assigned by the Director of the OMB for each approved agency information collection requirement.

Display.

part or section where identified or described	Current OMB control No.
1-30.....	2115-0136
1-3.....	2115-0095
1-1.....	2115-0095
1-1.....	2115-0095
1-1.....	2115-0514

[49 FR 38121, Sept. 27, 1984]

Subpart 175.05—Application

§ 175.05-1 Applicability to United States vessels.

(a) This subchapter shall be applicable to all United States flag vessels indicated in column 4 of Table 175.05-1(a) that are less than 100 gross tons, except as follows:

(1) Any vessel operating exclusively on inland waters which are not navigable waters of the United States.

(2) Any vessel while laid up and dismantled and out of commission.

(3) With the exception of vessels of the United States Maritime Administration, any vessel with title vested in the United States and which is used for public purposes and operated by a department or agency of the Federal Government.

(4) Any lifeboat forming part of a vessel's lifesaving equipment.

TABLE 175.05-1(a)

[See footnotes at end of table.]

Method of propulsion	Size or other limitations ¹	Classes of vessels (including motorboats) examined or inspected under various Coast Guard regulations ¹						
		Vessels inspected and certificated under Subchapter D—Tank Vessels ²	Vessels inspected and certificated under either Subchapter H—Passenger Vessels ^{3,4,5,6} or Subchapter T—Small Passenger Vessels ^{7,8,9}	Vessels inspected under Subchapter I—Cargo and Miscellaneous Vessels ¹⁰	Vessels subject to provisions of Subchapter C—Uninspected Vessels ^{11,12,13}	Vessels subject to provisions of Subchapter U—Oceanographic Vessels ^{14,15}	Vessels subject to provisions of Subchapter O—Certain Bulk Dangerous Cargoes ¹⁶	
Column 1	Column 2	Column 3	Column 4		Column 5	Column 6	Column 7	Column 8
Steam	Vessels not over 65 feet in length.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying more than 6 passengers. ¹	All tugboats and towboats.	All vessels except those covered by columns 3, 4, 5, and 7.	None		All vessels carrying in bulk the cargoes listed in table of Part 153 and table 4 of Part 154.
	Vessels over 65 feet in length.	All vessels carrying combustible or flammable liquid cargo in bulk. ^a	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All vessels of not over 15 gross tons which carry more than 6 passengers. ¹ 3. All other vessels carrying passengers, ¹ except: a. Yachts. b. Documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew.	All vessels except those covered by columns 3 and 4.	None	All vessels engaged in oceanographic research.	Do.	

Motor	Vessels not over 15 gross tons.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying more than 6 passengers. ¹	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 49 CFR Parts 171-179.	All vessels except those covered by columns 3, 4, 5, and 7.	None	All vessels carrying in bulk the cargoes listed in table 1 of Part 153 and table 4 of Part 154.
	Vessels over 15 gross tons except seagoing motor vessels of 300 gross tons and over.	All vessels carrying combustible or flammable liquid cargo in bulk. ²	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All vessels not over 65 feet in length which carry more than 6 passengers.³ 3. All other vessels of over 65 feet in length carrying passengers for hire except documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew.	All vessels carrying freight for hire except those covered by columns 3 and 4.	All vessels except those covered by columns 3, 4, 5, and 7.	None	Do.

TABLE 175.05-1(a)—Continued
[See footnotes at end of table]

Method of propulsion	Size or other limitations ¹	Classes of vessels (including multiboats) examined or inspected under various Coast Guard regulations ²					
		Vessels inspected and certificated under Subchapter D—Tank Vessels ³	Vessels inspected and certificated under either Subchapter H—Passenger Vessels ⁴ or Subchapter T—Small Passenger Vessels ⁵	Vessels inspected and certificated under Subchapter C—Cargo and Multiboats Vessels ⁶	Vessels subject to provisions of Subchapter C—Uninspected Vessels ^{7,8,9,10}	Vessels subject to provisions of Subchapter U—Oceanographic Vessels ^{11,12}	Vessels subject to provisions of Subchapter O—Certain Bulk Dangerous Cargoes ¹³
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
		All vessels carrying combustible or flammable liquid cargo in bulk. ¹⁴	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All other vessels carrying passengers, ¹⁵ except: a. Yachts. b. Documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew.	All vessels except those covered by columns 3 and 4, and those engaged in the fishing, oystering, clamming, crabbing, or any other branch of the fishery, kelp, or sponge industry.	All vessels except those covered by columns 3, 4, 5, and 7.	All vessels engaged in oceanographic research.	All vessels carrying in bulk the cargoes listed in table 1 of Part 153 and table 4 of Part 154.
Sail.....	Vessels of over 700 gross tons.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying more than 6 passengers. ¹⁶	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 49 CFR Parts 171-179.	None.....	None.....	Do.
	Vessels over 700 gross tons.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying passengers for hire.	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 49 CFR Parts 171-179.	None.....	None.....	Do.

Vessels 100 gross tons or over.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying passengers for hire.	All seagoing barges covered by 46 CFR Parts 96 or 49 CFR Parts 171-179.	All barges carrying passengers except those covered by columns 4 and 7.	All seagoing barges engaged in oceanographic research.	Do.
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This expression means a straight line measurement of the overall length from the bow to the stern, measured parallel to the centerline.

¹ Where length is used in this table it means the length measured from end to end over the deck, excluding sheer. This expression means a straight line measurement of the overall length from the bow to the stern, measured parallel to the centerline.

² Chapters E (Load Lines), F (Marine Engineering), J (Electrical Equipment), and N (Dangerous Cargoes) of this chapter may also be applicable under certain conditions. The provisions of 46 CFR Parts 171-179 apply whenever hazardous materials are on board vessels (including motorboats), except when specifically indicated by law.

³ Public nautical schoolships, other than vessels of the Navy and Coast Guard, shall meet the requirements of Part 155 of Subchapter R (Nautical Schools) of this chapter.

⁴ Subchapter H (Passenger Vessels) of this chapter covers only those vessels of 100 gross tons or more. Subchapter T (Small Passenger Vessels) of this chapter covers only those vessels of less than 100 gross tons.

⁵ Vessels covered by Subchapter H (Passenger Vessels), or a (Cargo and Miscellaneous Vessels), or a (Cargo and Miscellaneous Vessels) of this chapter, where the principal purpose or use of the vessel is not for the carriage of liquid cargo, may be granted a permit to carry a limited amount of flammable or combustible liquid cargo in bulk. The portion of the vessel used for the carriage of the flammable or combustible liquid cargo shall meet the requirements of Subchapter D (Tank Vessels) in addition to the requirements of Subchapter H (Passenger Vessels) or I (Cargo and Miscellaneous Vessels) of this chapter.

⁶ The meaning of the term "passenger" is as defined in the Act of May 10, 1956 (Sec. 1, 70 Stat. 151; 46 U.S.C. 350). On oceanographic vessels scientific personnel on board shall not be deemed to be passengers nor seamen, but for calculation of lifesaving equipment, etc., shall be counted as persons.

⁷ Boilers and machinery are subject to examination under the provisions of the Act of May 10, 1956 (Sec. 1, 70 Stat. 151; 46 U.S.C. 350). On oceanographic vessels scientific personnel on board shall not be deemed to be passengers nor seamen, but for calculation of lifesaving equipment, etc., shall be counted as persons.

⁸ Under 46 U.S.C. 441, "an oceanographic research vessel" is a vessel "being employed exclusively in instruction in oceanography or limnology, or both, or exclusively in oceanographic research." Under 46 U.S.C. 443, "an oceanographic research vessel shall not be deemed to be engaged in trade or commerce." If or when an oceanographic vessel engages in trade or commerce, such vessel cannot operate under its certificate of inspection as an oceanographic vessel, but shall be inspected and certificated for the service in which engaged, and the scientific personnel aboard then become persons employed in the business of the vessel.

⁹ Bulk dangerous cargoes are cargoes specified in table 151.01-10(b), in table 1 of Part 153, and in table 4 of Part 154 of this chapter.

¹⁰ For manned tank barges see § 151.01-10(e) of this chapter.

§ 175.05-2

(b) *S and L*: Any vessel carrying more than 150 passengers shall comply with the provisions of this subchapter and shall be subject to certain additional requirements as determined by the Officer in Charge, Marine Inspection. These additional requirements are contained in applicable regulations in Subchapter H (Passenger Vessels), Subchapter P (Manning), Subchapter F (Marine Engineering), and Subchapter J (Electrical Engineering) of this chapter.

(c) *S and L*: Nothing in the regulations in this subchapter shall be construed as exempting any mechanically propelled vessel, other than a yacht, which carries more than 12 passengers on an international voyage from the applicable requirements of the International Convention for Safety of Life at Sea, 1974.

(d) *S and L*: Any vessel which carries flammable or combustible liquid cargo, or explosives, or other dangerous articles or substances is subject to additional requirements provided in other laws and regulations. Any Officer in Charge, Marine Inspection, may be contacted for information concerning these additional requirements.

(e) *S and L*: Any mechanically propelled vessel inspected and certificated under the provisions of this subchapter, which is more than 15 gross tons and carries freight for hire, is subject to additional requirements provided in other laws and regulations. Any Officer in Charge, Marine Inspection, may be contacted for information concerning these additional requirements.

[CGFR 63-40, 28 FR 9734, Sept. 6, 1963, as amended by CGFR 70-10, 35 FR 3713, Feb. 25, 1970; CGFR 69-116, 35 FR 6862, Apr. 30, 1970; CGD 73-96, 42 FR 49027, Sept. 26, 1977; CGD 77-042, 42 FR 63643, Dec. 19, 1977; CGD 86-033, 53 FR 36026, Sept. 16, 1988; 53 FR 46871, Nov. 21, 1988; CGD 90-008, 55 FR 30663, July 26, 1990]

§ 175.05-2 Applicability to offshore supply vessels.

Offshore supply vessels of above 15 gross tons and less than 100 gross tons are subject to inspection under the provisions of this subchapter.

[CGD 80-133, 45 FR 69244, Oct. 20, 1980]

46 CFR Ch. I (10-1-90 Edition)

§ 175.05-3 Applicability to foreign vessels

(a) Except as specifically noted in paragraph (b) of this section, this chapter shall be applicable to the extent prescribed by law to all foreign vessels of the following classifications indicated in column 4 of Table 175.05-1(a) that are less than 100 gross tons:

(1) Mechanically propelled foreign vessels of more than 15 gross tons and over 65 feet in length which carry more than 12 passengers from any port in the United States.

(2) Foreign vessels which carry more than six passengers from any port in the United States and which are:

(i) Mechanically propelled vessels of not more than 15 gross tons regardless of length; or,

(ii) Mechanically propelled vessels of more than 15 gross tons but less than 65 feet in length; or,

(iii) Sailing vessels or nonself-propelled vessels regardless of length.

(b) The provisions of this subchapter shall not be applicable to those foreign vessels covered by paragraph (a) of this section which are:

(1) Vessels of a foreign nation signatory to the International Convention for Safety of Life at Sea, 1974, and which have on board a current, valid Safety Certificate; or,

(2) Vessels of a foreign nation having inspection laws approximating those of the United States together with reciprocal inspection arrangements with the United States, and which have on board a current, valid Certificate of Inspection issued by the government under such arrangements.

[CGFR 69-116, 35 FR 6862, Apr. 30, 1970, as amended by CGD 90-008, 55 FR 30663, July 26, 1990]

§ 175.05-5 Specific application noted in text.

(a) *S*: Under the designator "*S*" shall be included all vessels indicated in column 4 of Table 175.05-1(a) that are not more than 65 feet in length and less than 100 gross tons carrying more than six passengers.

(b) *L*: Under the designator "*L*" shall be included all vessels indicated in column 4 of Table 175.05-1(a) that are more than 65 feet in length and of less than 100 gross tons which are:

(1) Mechanically propelled vessels of more than 15 gross tons carrying one or more passengers for hire.

(2) Mechanically propelled vessels of not more than 15 gross tons carrying more than six passengers.

(3) Sailing vessels and barges carrying more than six passengers.

(c) Certain portions of this subchapter applicable to only "S" vessels are indicated by the designator "S". Portions applicable to only "L" vessels are indicated by the designator "L". Those portions of this subchapter applicable to both categories of vessels contain no designator or are designated "S and L".

(d) At the beginning of the various parts, subparts and sections, a more specific application is generally given for the particular portion of the text involved. This application sets forth the types, sizes, services or vessels to which the text pertains, and in many cases limits the application of the text to vessels contracted for before or after a specific date.

(e) As used in this subchapter the term "vessels contracted for" includes not only contracting for the construction of a vessel, but also contracting for a material alteration to a vessel, contracting for the conversion of a vessel to a passenger vessel, and changing of service or route of a vessel, if such change increases or modifies the general requirements for the vessel or increases the hazards to which it might be subjected.

[CGFR 69-116, 35 FR 6862, Apr. 30, 1970, as amended by CGD 79-165a, 45 FR 64189, Sept. 29, 1980]

§ 175.05-15 Gross tonnage as a criterion for requirements.

(a) The regulations in this subchapter, as well as referenced requirements in other subchapters in this chapter, take into account the passenger vessel's size, construction, and equipment, as well as its intended service on the routes or waters on which it is desired to be operated or navigated, which are indications of the hazards to which such vessel may be subjected. The Commandant's determinations in this respect for a particular passenger vessel are stipulated in a certificate of inspection, which states certain terms

and conditions governing such vessels when in operation.

(b) In applying the laws and regulations to passenger vessels, one criterion for invocation of safety standards is the description of passenger vessels by relative size in gross tons. When it is determined by the Commandant that the gross register tonnage for a particular passenger vessel, which is attained by exemptions, reductions, or other devices in the basic gross tonnage formulation, will circumvent or be incompatible with the application of specific safety requirements in the passenger vessel regulations for a vessel of such physical size, the Commandant shall prescribe the regulations to be made applicable to such vessel.

(c) When the Commandant determines that the gross register tonnage is not a valid criterion for the invocation of safety requirements based on relative size, the parties involved will be informed of the determination and of the regulations applicable to such passenger vessel, and before being permitted to operate such vessel, compliance therewith shall be required. Endorsements or notations on the passenger vessel's certificate of inspection may be made as appropriate.

Subpart 175.07—Load Lines

§ 175.07-1 Load lines required.

Vessels of 79 feet in length and over having their keels laid or at a similar stage of construction on or after July 21, 1968, and engaged in international voyages, are subject to load line assignment, certification, and marking under Subchapter E (Load Lines) of this chapter.

[CGFR 69-72, 34 FR 17503, Oct. 29, 1969]

Subpart 175.10—Definitions of Terms Used in This Subchapter

§ 175.10-1 Approved.

This term means approved by the Commandant unless otherwise stated.

§ 175.10-2 Approved type.

(a) Where equipment in this subchapter is required to be of an "ap-

§ 175.10-3

proved type," such equipment must be of a type which has been specifically approved by the Commandant.

(b) Notifications regarding approvals are published in the **FEDERAL REGISTER**. In addition, approved types of equipment are listed in Coast Guard publication CG-190, "Equipment Lists," which is available at the Marine Inspection Office of any Officer in Charge, Marine Inspection.

§ 175.10-3 Coastwise.

(a) This term shall be used to describe a route which is not more than 20 nautical miles offshore on any of the following waters:

- (1) Any ocean;
- (2) The Gulf of Mexico;
- (3) The Caribbean Sea;
- (4) The Gulf of Alaska; and,
- (5) Such other similar waters as may be designated by a Coast Guard District Commander.

§ 175.10-5 Commandant.

This term means the Commandant of the Coast Guard.

§ 175.10-7 Coast Guard District Commander.

This term means an officer of the Coast Guard designated as such by the Commandant to command all Coast Guard activities within his district which include the enforcement and administration of Title 52 of the Revised Statutes, acts amendatory thereof or supplemental thereto and rules and regulations thereunder.

§ 175.10-9 Ferry.

Under this designation shall be included those vessels, in other than ocean or coastwise service, having provisions only for deck passengers and/or vehicles, operating on a short run on a frequent schedule between two points over the most direct water route, and offering a public service of a type normally attributed to a bridge or tunnel.

§ 175.10-11 Great Lakes.

This term shall be used to describe a route on the waters of any of the Great Lakes.

46 CFR Ch. I (10-1-90 Edition)

§ 175.10-13 Headquarters.

This term means the office of the Commandant, United States Coast Guard, Washington, DC 20593-0001.

[CGD 81-059, 52 FR 38657, Oct. 18, 1987 and 54 FR 132, Jan. 4, 1989]

§ 175.10-15 Master.

This term means the officer having command of the vessel.

[CGD 81-059, 52 FR 38657, Oct. 18, 1987 and 54 FR 132, Jan. 4, 1989]

§ 175.10-17 Lakes, bays, and sounds.

(a) This term shall be used to describe a route on any of the following waters:

- (1) Any lake other than the Great Lakes;
- (2) Any bay;
- (3) Any sound; and,
- (4) Such other similar waters as may be designated by a Coast Guard District Commander.

§ 175.10-19 Length.

In determining length for the purpose of this chapter it shall be measured from end to end over the deck excluding sheer.

§ 175.10-21 Marine inspector or inspector.

This term means any person from the civilian or military branch of the Coast Guard assigned under the supervision and direction of an Officer in Charge, Marine Inspection, designated for the performance of duties with respect to the enforcement and administration of Title 52 of the Revised Statutes, acts amendatory thereof or supplemental thereto, rules and regulations thereunder.

§ 175.10-23 Non-self-propelled vessel.

Under this designation shall be included all vessels which do not have installed either propulsive machinery or masts, spars and sails.

§ 175.10-25 Ocean.

(a) This term shall be used to describe a route which is more than 20 nautical miles offshore on any of the following waters:

- (1) Any ocean;
- (2) The Gulf of Mexico;

The Caribbean Sea;
The Gulf of Alaska; and,
Such other similar waters as may
be designated by a Coast Guard Dis-
trict Commander.

§ 175.10-26 Officer in Charge, Marine In-
spection.

This term means any person from
civilian or military branch of the
Coast Guard designated as such by the
Commandant and who, under the su-
pervision and direction of the
District Commander, is
in charge of an inspection zone for the
performance of duties with respect to
inspections, enforcement, and ad-
ministration of Title 52, Revised Stat-
utes, and acts amendatory thereof or
supplemental thereto, and rules and
regulations thereunder.

§ 175.10-27 Passenger.

A passenger is every person other
than the master and the members of
the crew or other persons employed or
engaged in any capacity on board a
vessel in the business of that vessel.
The following special considerations
should be noted:

(1) S and L. In the case of a vessel
on an international voyage a child
under one year of age is not counted
as a passenger.

(2) S. For vessels subject to the pro-
visions of the Act of May 10, 1956 (46
U.S.C. 390-390g), the term passenger
means every person carried on board a
vessel other than:

(1) The owner or his representative;
(2) The master and the bona fide
members of the crew engaged in the
business of the vessel who have con-
tributed no consideration for their car-
riage and who are paid for their serv-
ices;

(3) Any employee of the owner of
the vessel engaged in the business of
the owner, except when the vessel is
operating under a bareboat charter;

(4) Any employee of the bareboat
charterer of the vessel engaged in the
business of the bareboat charterer;

(5) Any guest on board a vessel
which is being used exclusively for
recreational purposes who has not con-
tributed any consideration directly or
indirectly, for his carriage; or

(6) Any person on board a vessel doc-
umented and used for tugboat or tow-
boat service of fifty gross tons or more
who has not contributed any consider-
ation, directly or indirectly, for his
carriage.

[CGFR 63-40, 28 FR 9736, Sept. 6, 1963]

§ 175.10-28 Passengers for hire, carriage
of.

(a) The carriage of any person or
persons by a vessel for a valuable con-
sideration, whether directly or indi-
rectly flowing to the owner, charterer,
agent, or any other person interested
in the vessel.

[CGFR 63-40, 28 FR 9736, Sept. 6, 1963]

§ 175.10-29 Pilothouse control.

This term means that the operator
of the vessel may start and stop the
engines and control the direction and
speed of the propeller from the princi-
pal station from which the vessel is
steered.

§ 175.10-31 Recognized classification soci-
ety.

This term means any organization of
nationwide scope, such as the Ameri-
can Bureau of Shipping or Lloyd's
Register of Shipping, with standards
of construction or equipment which
have been accepted and/or approved
by the Commandant.

§ 175.10-33 Rivers.

(a) This term shall be used to de-
scribe a route on any of the following
waters:

- (1) Any river;
- (2) Any canal; and,

(3) Such other similar waters as may
be designated by a Coast Guard Dis-
trict Commander.

§ 175.10-36 Sailing vessel.

This term means a vessel with no
mechanical means of propulsion, all
propulsive power being provided by
sails.

§ 175.10-37 Vessel.

Where the word "vessel" is used in
this subchapter, it shall be considered
to include all vessels subject to the re-

§ 175.10-38

quirements of this subchapter as described in Subpart 175.05 of this part.

§ 175.10-38 Auxiliary sailing vessel.

This term means a vessel capable of being propelled by mechanical means and/or by sails.

[CGFR 68-32, 33 FR 5725, Apr. 12, 1968]

§ 175.10-40 Offshore supply vessel.

(a) An offshore supply vessel is a vessel that is propelled by machinery other than steam, that is of above 15 gross tons and less than 500 gross tons, and that regularly carries goods, supplies, or equipment in support of exploration, exploitation, or production of offshore mineral or energy resources.

(b) An existing offshore supply vessel is one that was operating as such on or before January 1, 1979, or that, if not in service of any kind on or before that date, was contracted for on or before that date and entered service as such before the effective date of this section.

(c) A new offshore supply vessel is one that is not an existing offshore supply vessel.

[CGD 80-133, 45 FR 69244, Oct. 20, 1980]

Subpart 175.15—Equivalents

§ 175.15-1 Conditions under which equivalents may be used.

(a) Where in this subchapter it is provided that a particular fitting, appliance, apparatus, or equipment, or type thereof, shall be fitted or carried in a vessel, or that any particular arrangement shall be adopted, the Commandant may accept in substitution therefor any other fitting, apparatus, or equipment, or type thereof, or any other arrangement: *Provided*, That he shall have been satisfied by suitable trials that the fitting, appliance, apparatus, or equipment, or type thereof, or the arrangement shall be at least as effective as that specified in this subchapter.

(b) In any case where it is shown to the satisfaction of the Commandant that the use of any particular equipment, apparatus, or arrangement not specifically required by law is unreasonable or impracticable, the Com-

46 CFR Ch. I (10-1-90 Edition)

mandant may permit the use of alternate equipment, apparatus, or arrangement to such an extent and upon such conditions as will insure, to his satisfaction, a degree of safety consistent with the minimum standards set forth in this subchapter.

Subpart 175.20—Administrative Procedure

§ 175.20-1 Assignment of marine inspector.

(a) Upon receipt of a written application for inspection, the Officer in Charge, Marine Inspection, will assign a marine inspector to inspect the vessel. This inspection will be made at a mutually agreed to time and place.

(b) The owner or someone representing the owner shall be present during the inspection.

§ 175.20-5 Notice of deficiencies and requirements.

(a) If during the inspection of a vessel, the vessel or its equipment is found not to conform to the requirements of law or the regulations in this subchapter, the marine inspector will point out all deficiencies and will discuss all requirements with the owner or his representative. Normally, the marine inspector will list all such requirements which have not been completed and present the list to the owner or his representative.

(b) In any case where the owner of a vessel or his representative desires further clarification of, or reconsideration of any requirement placed against his vessel, he may discuss the matter with the Officer in Charge, Marine Inspection.

Subpart 175.25—Special Consideration

§ 175.25-1 By Officer in Charge, Marine Inspection.

(a) In applying the provisions of Parts 177, 178, 180, 181, 182, 183, and 184 of this subchapter, the Officer in Charge, Marine Inspection, may give special consideration to departures from the specific requirements when special circumstances or arrangements warrant such departures.

CGFR 60-54, 25 FR 9315, Sept. 29, 1960, as amended by CGFR 68-32, 33 FR 5725, Apr. 2, 1968]

Subpart 175.27—Adoption of Standards and Specifications

Source: CGFR 68-82, 33 FR 18909, Dec. 8, 1968, unless otherwise noted.

175.27-1 General.

(a) In this subchapter portions or the entire text of certain industrial standards and specifications are referred to as the governing requirements for materials, equipment, tests, or procedures to be followed. These standards and specification requirements specifically referred to in this subchapter shall be the governing requirements for the subject matters covered unless specifically limited, modified, or replaced by other regulations in this subchapter.

(b) As used in this subchapter references to industry standards, such as those established by the American Bureau of Shipping, Lloyd's Register of Shipping or other recognized classification society, and others, mean that the Coast Guard uses such standards as a guide with respect to the subjects covered, and under normal conditions will accept machinery, etc., meeting the requirements of such standards. Such standards are not adopted as the governing requirements and made a part of the regulations in this subchapter by reference.

(c) In this subpart are listed the organizations publishing standards and specifications which are adopted by reference. The standards and specifications may be obtained direct from the organization issuing the standard or specification.

175.27-5 American Boat and Yacht Council, Inc. (ABYC).

(a) The materials as referenced in this subchapter from standards published by the American Boat and Yacht Council, Inc., in effect on the date equipment is manufactured, are adopted and shall form a part of the regulations in this subchapter. Copies of the referenced materials may be obtained from the American Boat and

Yacht Council, Inc., 420 Lexington Avenue, New York, NY 10017.

175.27-20 Yacht Safety Bureau (YSB).

(a) The materials as referenced in this subchapter from standards published by the Yacht Safety Bureau, in effect on the date equipment is manufactured, are adopted and shall form a part of the regulations in this subchapter. Copies of the referenced materials may be obtained from the Yacht Safety Bureau, 336 Old Hook Road, Westwood, NJ 07676.

Subpart 175.30—Appeals

175.30-1 Right of appeal.

Any person directly affected by a decision or action taken under this subchapter, by or on behalf of the Coast Guard, may appeal therefrom in accordance with subchapter 1.03 of this chapter.

[CGD 83-033, 54 FR 50382, Dec. 6, 1989]

Subpart 175.35—Special Provisions

175.35-1 Existing offshore supply vessels.

(a) Existing offshore supply vessels of above 15 and less than 100 gross tons that do not possess a valid certificate of inspection must be registered with an officer in charge, marine inspection on or before January 6, 1981. The initial inspection for certification for each registered offshore supply vessel shall be made within two years of the date the vessel is registered.

(b) The registration must be on board the vessel and available for inspection.

[CGD 80-133, 45 FR 69244, Oct. 20, 1980]

PART 176—INSPECTION AND CERTIFICATION

Subpart 176.01—Certificate of Inspection

Sec.

- 176.01-1 When required—S.
- 176.01-3 When required—L.
- 176.01-5 Description.
- 176.01-10 How to obtain or renew.
- 176.01-15 Period of validity.
- 176.01-20 Routes permitted.

§ 176.01-1

- Sec.
 176.01-25 Passengers permitted.
 176.01-27 Permit to proceed to another port for repair—L.
 176.01-30 Permit to carry excursion party.
 176.01-35 Certificate of inspection amendment.
 176.01-40 Posting.
 176.01-45 Certification expiration date stickers.

Subpart 176.05—Inspection for Certification

- 176.05-1 General.
 176.05-5 Initial inspection for certification.
 176.05-10 Subsequent inspections for certification.

Subpart 176.10—Reinspection

- 176.10-1 When made.
 176.10-5 Scope.

Subpart 176.15—Drydocking or Hauling Out

- 176.15-1 When required.
 176.15-5 Scope of drydock examination.
 176.15-10 Notice.

Subpart 176.20—Repairs and Alterations

- 176.20-1 Permission required.
 176.20-5 Inspection required.

Subpart 176.25—Material Inspections

- 176.25-1 Inspection standards.
 176.25-5 Hull.
 176.25-10 Machinery.
 176.25-15 Electrical.
 176.25-20 Lifesaving equipment—S.
 176.25-22 Lifesaving equipment—L.
 176.25-25 Fire extinguishing equipment.
 176.25-27 Fire extinguishing equipment—L.
 176.25-30 Pressure vessels—S.
 176.25-32 Pressure vessels—L.
 176.25-35 Steering apparatus.
 176.25-40 Miscellaneous systems and equipment.
 176.25-45 Sanitary inspection.
 176.25-50 Unsafe practices.

Subpart 176.30—Limitations of Inspections

- 176.30-1 Marine inspector not limited.

Subpart 176.35—International Convention for Safety of Life at Sea, 1974

- 176.35-1 Vessels subject to requirements.
 176.35-5 International voyage.
 176.35-10 Voyage between continental United States and Hawaii or Alaska or between Hawaii and Alaska.
 176.35-15 Passenger Ship Safety Certificate.
 176.35-20 Exemption Certificate.

46 CFR Ch. I (10-1-90 Edition)

- Sec.
 176.35-25 Posting of Convention certificates.
 176.35-30 Duration of certificates.

AUTHORITY: 33 U.S.C. 1321(j); 46 U.S.C. 3306, 8105; 49 U.S.C. App. 1804; E.O. 11783, 38 FR 21243, 3 CFR, 1971-1975 Comp., p. 793; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGFR 60-54, 25 FR 9319, Sept. 29, 1960, unless otherwise noted.

Subpart 176.01—Certificate of Inspection

§ 176.01-1 When required—S.

(a) Except as noted in this subpart, every vessel subject to inspection and certification shall, when carrying more than six passengers, have on board a valid certificate of inspection, Form CG-3753, and shall be operated in compliance therewith.

(b) Every mechanically propelled vessel of above 15 gross tons inspected and certificated under the provisions of this subchapter shall, during the tenure of the certificate, be in full compliance with the terms of the certificate when carrying freight for hire. Any other vessel certificated under the provisions of this subchapter when carrying not more than 6 passengers, and when operating as a yacht, commercial fishing vessel, cargo carrier, etc., will be subject only to the laws, rules and regulations governing the type of operation in which it engages.

(c) If necessary to prevent delay of the vessel, a temporary certificate of inspection, Form CG-854, shall be issued pending the issuance and delivery of the regular certificate of inspection. Such temporary certificate shall be carried in the same manner as the regular certificate and shall in all ways be considered the same as the regular certificate of inspection which it represents.

[CGFR 63-40, 28 FR 9736, Sept. 6, 1963]

§ 176.01-3 When required—L.

(a) Except as noted in this subpart or § 176.01-27, no vessel subject to inspection and certification may be operated without a valid certificate of inspection, Form CG-3753.

If necessary to prevent delay of a vessel, a temporary certificate of inspection, Form CG-854, shall be pending the issuance and delivery of the regular certificate of inspection. Such temporary certificate shall be issued in the same manner as the regular certificate and shall in all respects be considered the same as the regular certificate of inspection which it represents.

Nothing in this subpart shall prevent a vessel upon a regularly established line from a port in the United States to a port of a foreign country contiguous to the United States. A certificate of inspection expires upon the expiration of the certificate or while said vessel is in a foreign port or a port of Hawaii from lawfully completing her voyage without a valid certificate of inspection or a temporary certificate required by this subpart. *Provided*, That the voyage shall be completed within 30 days after the expiration of the certificate of inspection. No such vessel shall be re-inspected if its certificate of inspection expires within 15 days of the date of completion of the voyage will be completed before such expiration.

[CGFR 63-40, 28 FR 9736, Sept. 6, 1963, as amended by CG 72-53R, 37 FR 12492, June 21, 1972]

1-5 Description.

The certificate of inspection issued to a vessel will describe the vessel, the route which she may travel, minimum manning requirements, major lifesaving equipment carried, the minimum fire extinguishing equipment and life preservers required to be carried, the maximum number of passengers and the maximum number of crew members which may be carried, the name of the owner and operator, and the conditions of operations as may be determined by the Officer in Charge, Marine Inspection.

[R 69-116, 35 FR 6863, Apr. 30, 1970]

101-10 How to obtain or renew.

S and L. The certificate of inspection shall be obtained or renewed by making application for inspection on Form CG-3752, Application for Inspection of U.S. Vessel, to the Coast Guard Marine Inspection Office located

in, or nearest the port at which the inspection is to be made. The application forms are available at any local Coast Guard Marine Inspection Office.

(b) *S and L.* The application for initial inspection of a vessel being newly constructed or converted shall be submitted prior to the start of such construction or conversion. Information and requirements or plans are in Subpart 177.05 of this subchapter.

(c) *S and L.* The construction, arrangement and equipment of all vessels shall be acceptable to the cognizant Officer in Charge, Marine Inspection, as a prerequisite of the issuance of the initial certificate of inspection. Such acceptance will be based on the information, specifications, drawings and calculations available to the Officer in Charge, Marine Inspection, and on the successful completion of an initial inspection for certification.

(d) *S.* Certificates of inspection will be renewed by the issuance of new certificates of inspection. Such renewal will normally be made triennially upon expiration of the old certificate of inspection but may be made at any time within the three years upon proper application.

(e) *L.* Certificates of inspection will be renewed by the issuance of new certificates of inspection. Such renewal will normally be made annually upon expiration of the old certificate of inspection but may be made at any time within the year upon proper application.

(f) *S and L.* The condition of the vessel and its equipment shall be acceptable to the cognizant Officer in Charge, Marine Inspection, as a prerequisite of the certificate of inspection renewal. Such acceptance will be based on the condition as found at the periodic inspection for certification.

[CGFR 63-40, 28 FR 9737, Sept. 6, 1963, as amended by CGFR 64-19, 29 FR 7362, June 5, 1964]

§ 176.01-15 Period of validity.

(a) *S.* A certificate of inspection will be issued for a period of three years, and will remain valid for such period unless renewed, revoked, suspended, or surrendered.

(b) *L.* A certificate of inspection will be issued for a period of one year and will remain valid for such period unless renewed, revoked, suspended, or surrendered.

(c) *S and L.* A certificate of inspection may be revoked, or suspended and withdrawn by the Officer in Charge, Marine Inspection, at any time for noncompliance with the provisions of this subchapter or requirements established thereunder.

[CGFR 63-40, 28 FR 9737, Sept. 6, 1963]

§ 176.01-20 Routes permitted.

(a) The area of operation permitted each vessel shall be as designated by the Officer in Charge, Marine Inspection. Such area of operation shall be described on the certificate of inspection under the major headings "ocean," "coastwise," "Great Lakes," "lakes, bays, and sounds," or "rivers," as applicable. Further limitations imposed or extensions granted shall be described by reference to bodies of waters, geographical points, distance from geographical points, distances from land, depths of channel, seasonal limitations, etc.

(b) Operation of vessels on routes of lesser severity than those specifically described or designated on the certificate of inspection will be permitted. The general order of severity is considered to be ocean; coastwise; Great Lakes; lakes, bays, and sounds; and rivers. Differences in local conditions of operation, as referred to in paragraph (a) of this section, may need to be taken into account.

(c) Non-self-propelled vessels shall, in general, be limited to routes other than "ocean" or "coastwise."

§ 176.01-25 Passengers permitted.

(a) The maximum number of passengers permitted to be carried on a vessel shall be as determined by the Officer in Charge, Marine Inspection, having jurisdiction and shall be stated on the vessel's certificate of inspection.

(b) The maximum number of passengers permitted on any vessel of reasonable design and proportions may be determined by length of rail criteria, deck area criteria, or fixed seating cri-

teria, whichever permits the greater number. Where seats are provided in one passenger space and are not provided in other passenger spaces, the number of passengers permitted may be the sum of the number permitted by the seating criteria for the space having seats and the number permitted by the area criteria for the space having no seats. For vessels operating on short runs on protected waters such as ferry vessels, the Officer in Charge, Marine Inspection may give special consideration to increases in passenger allowances.

(1) *Length of rail criteria.* One passenger may be permitted for each 30 inches of rail space available to the passengers at the vessel's sides and across the transom.

(2) *Deck area criteria.* One passenger may be permitted for each 10 square feet of deck area available for the passengers' use. In computing such deck area, the areas occupied by the following shall be excluded:

- (i) Concession stands.
- (ii) Toilets and washrooms.
- (iii) Companionways, stairways, etc.
- (iv) Spaces occupied by and necessary for handling lifesaving equipment.
- (v) Spaces below deck which are unsuitable for passengers and which would not normally be used by passengers.

(vi) Interior passageways less than 30 inches wide and passageways on the open deck less than 18 inches wide.

(3) *Fixed seating criteria.* One passenger may be permitted for each 18 inches of width of fixed seating provided. Regulations covering the installation of fixed seating are contained in § 177.30-1 (c) of this subchapter.

(c) Notwithstanding the number of passengers permitted by any of the criteria described in paragraph (b) of this section, the maximum number may be further limited by stability or subdivision considerations.

[CGFR 60-54, 25 FR 9319, Sept. 29, 1960, as amended by CGFR 68-32, 33 FR 5725, Apr. 12, 1968]

§ 176.01-27 Permit to proceed to another port for repair—L.

The Officer in Charge, Marine Inspection, may issue a permit to proceed to another port for repair, Form CG-948, to a vessel if in his judgment it can be done with safety even if the certificate of inspection of the vessel has expired or is about to expire.

Such permit will only be issued upon the written application of the vessel, owner, or agent of the vessel.

The permit will state upon its face the conditions under which it is issued and whether or not the vessel is permitted to carry freight or passengers. Passengers may not be carried if the certificate of inspection has expired, except as provided under § 176.01-3(c).

The permit shall be carried in a manner similar to that described in § 176.01-40 for a certificate of inspection.

[CGFR 63-40, 28 FR 9737, Sept. 6, 1963]

§ 176.01-30 Permit to carry excursion party.

(a) A vessel may be permitted to engage in a temporary excursion operation with a greater number of passengers and/or on a more extended route than permitted by its certificate of inspection when in the opinion of the Officer in Charge, Marine Inspection, such operation can be undertaken with safety. A "Permit To Carry Excursion Party," Form CG-949, shall be a prerequisite of such an operation.

(b) Any Officer in Charge, Marine Inspection, having jurisdiction may issue a permit to carry excursion party upon the written application of the vessel, owner or agent of the vessel.

(c) An inspection either general or partial, depending upon the circumstances, may be made prior to the issuance of a permit to carry excursion party.

(d) The permit will state upon its face the conditions under which it is issued, the number of passengers the vessel may carry, the crew required, any additional lifesaving or safety equipment which will be required, the date for which the permit is granted, and the dates on which the permit will expire.

(e) The permit when used shall be carried with the certificate of inspection. Any vessel to which a permit to carry excursion party has been issued shall, during the tenure of the permit, be in full compliance with the terms of its certificate of inspection as supplemented by such permit.

[CGFR 60-54, 25 FR 9319, Sept. 29, 1960, as amended by CGFR 68-32, 33 FR 5725, Apr. 12, 1968]

§ 176.01-35 Certificate of inspection amendment.

(a) A certificate amending a valid certificate of inspection may be issued at any time by any Officer in Charge, Marine Inspection, having jurisdiction over the vessel. The "Certificate of Inspection Amendment," Form CG-858, may be issued to authorize and record a change in the character of a vessel or in her route, equipment, etc., as specified in her certificate of inspection previously issued and currently valid.

(b) Notification and a request for a certificate of inspection amendment shall be made to the Officer in Charge, Marine Inspection, having jurisdiction, by the operator, owner, or agent of the vessel at any time there is a change in the character of a vessel or in her route, equipment, ownership, etc., as specified in her certificate of inspection previously issued and currently valid.

(c) An inspection, either general or partial depending on the circumstances, may be made prior to the issuance of a certificate of inspection amendment.

(d) A certificate of inspection amendment, when issued, shall become a part of the certificate which it amends, and shall be carried with the certificate of inspection.

[CGFR 60-54, 25 FR 9319, Sept. 29, 1960, as amended by CGFR 64-19, 29 FR 7362, June 5, 1964]

§ 176.01-40 Posting.

(a) The certification of inspection shall, in general, be framed under glass or other transparent material and posted in a conspicuous place. When the framing of the certificate would be impracticable, the certificate

§ 176.01-45

of inspection shall be kept on board to be shown on demand.

§ 176.01-45 Certification expiration date stickers.

(a) The owner, master, or person in charge of a vessel that is issued a Certificate of Inspection under the provisions of this subchapter must not operate the vessel without a Certification Expiration Date Sticker affixed to the vessel on a place that is:

- (1) On a glass or smooth metal surface from which the sticker may be removed without damage to the vessel;
- (2) readily visible to each boarding passenger and to patrolling Coast Guard law enforcement personnel; and
- (3) acceptable to the Coast Guard marine inspector.

(b) The Coast Guard marine inspector may require the placement of more than one sticker in order to insure compliance with paragraph (a)(2) of this section.

(c) A Certification Expiration Date Sticker indicates the date upon which the vessel's Certificate of Inspection expires and is provided by the Officer in Charge, Marine Inspection, in the number required, upon issuance or renewal of the Certificate of Inspection.

[CGD 76-162, 43 FR 30771, July 17, 1978]

Subpart 176.05—Inspection for Certification

§ 176.05-1 General.

(a) An inspection for certification is a prerequisite of the issuance of a certificate of inspection. Such inspection will be made only upon the written application of the operator, owner or agent on Form CG-3752 to the Officer in Charge, Marine Inspection, having jurisdiction.

§ 176.05-5 Initial inspection for certification.

(a) The initial inspection shall include an inspection of the structure, machinery, and equipment, including the outside of the vessel's bottom and unfired pressure vessels.

(b) In the case of a vessel being newly constructed or converted, the initial inspection may consist of a

46 CFR Ch. I (10-1-90 Edition)

series of inspections during the construction or conversion.

(c) The inspection shall be such as to insure that the arrangement, materials and scantlings of the structure, piping, main and auxiliary machinery, electrical installations, lifesaving appliances, fire extinguishing equipment, pollution prevention equipment, and all other equipment comply with the regulations in this subchapter to the extent they are applicable to the vessel being inspected, and are in accordance with such approved plans as may be required by Subpart 177.03 of this subchapter. The inspection shall also be such as to insure that the materials, workmanship and condition of all parts of the vessel and its machinery and equipment are in all respects satisfactory for the service intended, and that the vessel is in possession of a valid certificate issued by the Federal Communications Commission, if required.

[CGFR 68-32, 33 FR 5726, Apr. 12, 1968, as amended by CGD 71-161R, 37 FR 28363, Dec. 21, 1972]

§ 176.05-10 Subsequent inspections for certification.

(a) An inspection for renewal of a certificate of inspection shall include an inspection of the structure, machinery and equipment. The inspection shall be such as to insure that the vessel, as regards the structure, piping, main and auxiliary machinery, electrical installations, lifesaving appliances, fire extinguishing equipment, pollution prevention equipment and other equipment, is in satisfactory condition and fit for the service for which it is intended and that it complies with the regulations in this subchapter to the extent that such regulations are applicable to the vessel being inspected.

(b) At each inspection for certification, the inspector shall examine the vessel to determine that it meets the vessel design and equipment requirements for pollution prevention in 33 CFR Part 155, Subpart B.

[CGFR 60-54, 25 FR 9319, Sept. 29, 1960, as amended by CGD 71-161R, 37 FR 28363, Dec. 21, 1972]

Subpart 176.10—Reinspection**176.10-1 When made.**

S. At least two reinspections shall be made on each vessel within each annual inspection period. When possible, these reinspections will be made at approximately equal intervals between triennial inspections for certification, but may be made at such other intervals as may be required by the Officer in Charge, Marine Inspection.

L. Vessels in this category are required to be reinspected between annual inspections, except where specially deemed necessary by the Officer in Charge, Marine Inspection.

[CGFR 63-40, 28 FR 9737, Sept. 6, 1963]

176.10-5 Scope.

In general, the scope of the reinspection shall be the same as for the annual inspection for certification, but will be in less detail unless it is determined that a major change has occurred since the last inspection for certification.

The marine inspector shall examine all accessible parts of the vessel's machinery, and equipment to be determined that they are in a satisfactory condition.

Subpart 176.15—Drydocking or Hauling Out**176.15-1 When required.**

Except for extensions as authorized by the Commandant, all vessels shall be drydocked or hauled out and be available for examination, and shall be examined by a marine inspector within the periods set forth in this paragraph, depending upon the service.

Each vessel shall be drydocked or hauled out at intervals not to exceed 6 months if it operated in salt water and of more than 9 months in the 18-month period since it was last drydocked or hauled out.

Each vessel shall be drydocked or hauled out at intervals not to exceed 6 months if it operated in salt water and of 6 months or less in each 12-month period since it was last drydocked or hauled out. When a vessel exceeds this total amount of service in

salt water in any 12-month period since it was last drydocked or hauled out, it shall be drydocked or hauled out within 6 months after the end of that period or within the 36-month interval, whichever is earlier.

(3) Each vessel shall be drydocked or hauled out at intervals not to exceed 60 months if it operates exclusively in fresh water.

(b) Whenever a vessel is drydocked or hauled out in excess of the requirements of this section, an examination may be made by a marine inspector.

[CGFR 60-54, 25 FR 9319, Sept. 29, 1960, as amended by CGFR 62-17, 27 FR 9048, Sept. 11, 1962]

§ 176.15-5 Scope of drydock examination.

(a) A periodic examination made in accordance with the requirements of this subpart shall include the underwater hull and appendages, propellers, shafting, stern bearings, rudders, throughhull fittings, sea valves and strainers, and shall be of sufficient scope to determine that these items are in a satisfactory condition for the service intended.

(1) Any part or all of the propeller shafting may be required to be drawn for examination of the shafting and stern bearing.

(2) Sea chests, sea valves, and sea strainers may be required to be opened for internal examination.

(b) Drydock examinations in excess of the periodic examinations required by this subpart may be of the same scope as a periodic examination or may be a partial examination depending on the circumstances.

§ 176.15-10 Notice.

(a) Whenever any vessel is to be drydocked or hauled out in compliance with § 176.15-1, or to carry out major repairs or alterations affecting the safety or seaworthiness of the vessel, it shall be the duty of the person in charge of the vessel, the owner, or the agent to report the same, together with the nature of any repairs or alterations contemplated, as far in advance as practicable to the Officer in Charge, Marine Inspection, in order that an examination may be made by a marine inspector. Such notification

§ 176.20-1

may be made verbally at the Marine Inspection Office of the Officer in Charge, Marine Inspection, having jurisdiction, or it may be made by telephone, telegraph, letter or similar means of communication.

(b) Whenever a vessel is drydocked or hauled out, in excess of the requirements of this subpart, for the purpose of minor repairs, such as changing a propeller, painting or cleaning the hull, no report need be made to the Officer in Charge, Marine Inspection.

Subpart 176.20—Repairs and Alterations

§ 176.20-1 Permission required.

(a) No major repairs or alterations affecting the safety of the vessel with regard to the hull, machinery, or equipment, shall be made without the knowledge and approval of the Officer in Charge, Marine Inspection.

(b) Proposed alterations shall be approved by the Officer in Charge, Marine Inspection, before work is started. Drawings, sketches or written specifications describing the alterations in detail may be required by the Officer in Charge, Marine Inspection.

(c) Drawings will not be required for repairs or replacements in kind.

§ 176.20-5 Inspection required.

(a) An inspection, either general or partial, depending upon the circumstances, may be made whenever any major repairs or alterations are undertaken.

Subpart 176.25—Material Inspections

§ 176.25-1 Inspection standards.

(a) Vessels shall be inspected for compliance with the standards required by this subchapter. For items not covered by standards in this subchapter, inspection shall be in accordance with standards acceptable to the Officer in Charge, Marine Inspection, as good marine practice.

(b) In the application of inspection standards due consideration will be given to the hazards involved in the operation permitted by a vessel's certificate of inspection. Thus the standards may vary in accordance with the

46 CFR Ch. I (10-1-90 Edition)

vessel's area of operation or any other operational restrictions or limitations.

(c) The published standards of recognized classification societies (such as the American Bureau of Shipping and Lloyd's Register of Shipping) and other recognized safety associations (such as the National Fire Protection Association) may be used as a guide in the inspection of vessels insofar as such standards do not conflict with the requirements of this subchapter.

[CGFR 60-54, 25 FR 9319, Sept. 29, 1960, as amended by CGFR 68-32, 33 FR 5726, Apr. 12, 1968]

§ 176.25-5 Hull.

(a) At each initial and subsequent inspection for certification, the marine inspector shall view the vessel afloat and shall conduct the following tests and inspections of the hull structure and its appurtenances:

(1) Examine all accessible parts of the exterior and interior of the hull, the watertight bulkheads, and weather deck. Where the internals of the vessel are completely concealed, sections of the lining or ceiling may be removed or the parts otherwise probed or exposed so that the marine inspector may satisfy himself as to the condition of the hull structure.

(2) Examine and test by operation all watertight closures in the hull, decks and bulkheads.

(3) Check the condition of the superstructure, flying bridge, masts, stacks, fishing platforms and similar arrangements constructed on the hull. In sailing vessels inspect all spars, standing rigging, running rigging, blocks, fittings, and sails.

(4) Inspect all railings and bulwarks and their attachment to the hull structure. Special attention is to be paid to insure that guards or rails are provided in all dangerous places.

(5) Examine all weathertight closures above weather deck and inspect the provisions for drainage of sea water from the exposed decks.

§ 176.25-10 Machinery.

(a) At each initial and subsequent inspection for certification the marine inspector shall examine and test the following items to the extent neces-

to determine that they are in operating condition and fit for service for which they are intended.

Main propulsion machinery. The inspector may require that the propulsion machinery be operated ahead and astern. The auxiliary machinery and cooling water system shall be checked.

Engine starting system. Alternate methods of starting shall be checked.

Engine control mechanisms. Engine control mechanisms shall be tested by operation and examined, visually, throughout their length.

Auxiliary machinery. All machinery essential to the routine operation of the vessel shall be checked.

Fuel systems. Tanks, tank vents, other appurtenances, piping and fittings shall be checked. The fuel lines for the main propulsion engine, all auxiliaries and all other fuel lines installed shall be checked. All valves in the fuel lines shall be tested by operation locally and at remote operating positions.

Sea valves and bulkhead closure devices. All overboard discharge and sea valves shall be checked.

Bilge and drainage systems. The bilges provided for pumping bilges shall be tested by operation. All suction strainers shall be examined.

At all inspections special attention shall be paid to insure that no fire hazards exist and that guards or protective devices are provided in all hazardous places.

15-15 Electrical.

At each initial and subsequent inspection for certification the marine inspector shall examine and test the following items to the extent necessary to determine that they are in operating condition, safe electrical condition, and fit for the service for which they are intended:

Electrical cable. The cable shall be examined as far as practicable without undue disturbance of the cable or electrical apparatus.

Overload or circuit protective device. Circuit breakers shall be tested by normal operation and fuses shall be examined visually. The ratings of

fuses shall be checked to determine suitability for the service intended.

(3) **Rotating machinery.** Rotating electrical machinery essential to the routine operation of the vessel shall be checked.

(4) **Generators, etc.** All generators, motors, lighting fixtures and circuit interrupting devices located in spaces or areas which may contain flammable vapors shall be checked.

(5) **Storage batteries.** Batteries shall be checked for condition and security of stowage.

(6) **Fire protective devices.** Electrical apparatus which operates as part of, or in conjunction with, a fire protective device installed on board the vessel shall be tested by operation. The test shall be applied in the same manner as, or in a manner intended to simulate, the actual operation in case of fire.

§ 176.25-20 Lifesaving equipment—S.

(a) At each initial and subsequent inspection for certification and reinspection the marine inspector shall inspect all lifesaving equipment to determine its serviceability.

(b) Life preservers, if found to be of approved type and in good condition, shall be stamped "Passed", together with the date, the port and the marine inspector's initials.

(c) A hydraulic release used in the installation of any liferaft, inflatable liferaft, lifefloat, or buoyant apparatus shall undergo the periodic servicing and testing required by Subpart 160.062 of Subchapter Q (Specifications) of this chapter every 12 months which may be extended to 15 months as determined by the date shown on its inspection tag. The springs of a spring-tensioned gripe used in such an installation shall be renewed when the accompanying hydraulic release is serviced and tested.

(d) An inflatable liferaft must meet the following:

(1) The liferaft must be approved under Subpart 160.051 of this chapter.

(2) Except as required in paragraph (d)(3) of this section, the liferaft must be marked in accordance with § 160.051-8 of this chapter.

§ 176.25-22

(3) After January 1, 1976 on vessels certificated for Great Lakes service and after January 1, 1980 on other certificated vessels, the liferaft must show on or near the liferaft's nameplate, and the liferaft's container must show on or near the plate, marking approved by a Coast Guard inspector that is—

(i) An approval number consisting of "160.051/" followed by a number that is greater than 49 followed by a revision number (e.g. 160.051/50/1); or

(ii) An approval number consisting of "160.051/" followed by a number that is smaller than 50 that is followed by a revision number (e.g. 160.051/48/1), the words "MOD. TEMP.", a Coast Guard inspector's initials, and the date that an inspector found that the liferaft met § 160.051-5(c)(4) of this chapter.

[CGFR 60-54, 25 FR 9319, Sept. 29, 1960, as amended by CGFR 63-40, 28 FR 9737, Sept. 6, 1963; CGFR 68-32, 33 FR 5726, Apr. 12, 1968; CGD 75-040, 40 FR 58454, Dec. 17, 1975]

§ 176.25-22 Lifesaving equipment—L.

(a) At each initial and subsequent inspection for certification, the marine inspector shall inspect all lifesaving equipment to determine its serviceability.

(b) Life preservers, if found to be of approved type and in good condition shall be stamped "Passed," together with the date, the port and the marine inspector's initials.

(c) At each reinspection conducted in accordance with § 176.10-1(b), such examination of lifesaving equipment shall be made as deemed necessary by the Officer in Charge, Marine Inspection.

(d) A hydraulic release used in the installation of any liferaft, inflatable liferaft, lifefloat, or buoyant apparatus shall undergo the periodic servicing and testing required by subpart 160.062 of Subchapter Q (Specifications) of this chapter every 12 months which may be extended to 15 months as determined by the date shown on its inspection tag. The springs on a spring-tensioned gripe used in such an installation shall be renewed when the accompanying hydraulic release is serviced and tested.

46 CFR Ch. I (10-1-90 Edition)

(e) An inflatable liferaft must meet the following:

(1) The liferaft must be approved under Subpart 160.051 of this chapter.

(2) Except as required in paragraph (e)(3) of this section, the liferaft must be marked in accordance with § 160.051-8 of this chapter.

(3) After January 1, 1976 on vessels certificated for Great Lakes service and after January 1, 1980 on other certificated vessels, the liferaft must show on or near the liferaft's nameplate, and the liferaft's container must show on or near the plate, marking approved by a Coast Guard inspector that is—

(i) An approval number consisting of "160.051/" followed by a number that is greater than 49 followed by a revision number (e.g. 160.051/50/1); or

(ii) An approval number consisting of "160.051/" followed by a number that is smaller than 50 that is followed by a revision number (e.g. 160.051/48/1), the words "MOD. TEMP.", a Coast Guard inspector's initials, and the date that an inspector found that the liferaft met § 160.051-5(c)(4) of this chapter.

[CGFR 63-40, 28 FR 9737, Sept. 6, 1963, as amended by CGFR 68-32, 33 FR 5726, Apr. 12, 1968; CGD 75-040, 40 FR 58455, Dec. 17, 1975]

§ 176.25-25 Fire extinguishing equipment.

(a) At each initial and subsequent inspection for certification and reinspection the firefighting equipment of all vessels shall be inspected and all deficiencies found shall be corrected. The marine inspector shall conduct the following examinations and tests:

(1) The fire pump shall be tested and the fire hose shall be subjected to the available fire pump pressure.

(2) All hand portable fire extinguishers and semi-portable fire extinguishing systems shall be checked as noted in Table 176.25-25(a)(2), and in addition shall be examined for excessive corrosion and general condition.

TABLE 176.25-25(a)(2)

Type unit	Test
Acid	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge.
Antifreeze	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge.
Water (water or antifreeze)	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge with clean water or antifreeze.
Cartridge operated (water, antifreeze or loaded stream)	Examine pressure cartridge and replace if end is punctured or if cartridge is otherwise determined to have leaked or to be in unsuitable condition. Remove liquid, clean hose and inside of extinguisher thoroughly. Recharge with clean water, solution, or antifreeze. Insert charged cartridge.
Carbon dioxide	Weigh cylinders. Recharge if weight loss exceeds 10 percent of weight of charge. Inspect hose and nozzle to be sure they are clear.
Dry chemical (cartridge-operated type)	Examine pressure cartridge and replace if end is punctured or if cartridge is otherwise determined to have leaked or to be in unsuitable condition. Inspect hose and nozzle to see if they are clear. Insert charged cartridge. Be sure dry chemical is free-flowing (not caked) and chamber contains full charge.
Dry chemical (stored pressure type)	See that pressure gage is in operating range. If not, or if seal is broken, weigh or otherwise determine that full charge of dry chemical is in extinguisher. Recharge if pressure is low or if dry chemical is needed.

(3) All cylinders of fixed carbon dioxide systems shall be weighed and if the weight loss exceeds 10 percent of the weight of the charge, they shall be recharged. All cylinders shall be examined externally and if excessive corrosion is found they shall be replaced.

(b) During the inspection for certification and reinspection, all or any part of the fire apparatus may be service tested.

(c) In addition to the other requirements of this section, §§ 147.60 and 147.65 of this chapter require that—

(1) Carbon dioxide cylinders of all portable and semiportable extinguishers and fixed systems be tested and marked;

(2) Flexible connections of semiportable and fixed carbon dioxide systems be renewed or tested; and

(3) Discharge hoses of semiportable carbon dioxide systems be tested.

NOTE: Section 147.65 of this chapter includes a requirement that the cylinder must be retested and re-marked under the following conditions: (1) Whenever a cylinder is recharged or for any cause removed from a vessel subsequent to 5 years from the latest test date stamped on the shoulder of the cylinder; or, (2) Whenever a cylinder remains in place on a vessel for 12 years from the latest test date stamped on the shoulder of the cylinder. Cylinders retested under any of the above conditions shall have new or renewed valve and safety relief devices of the proper design installed in the cylinder.

[CGFR 60-54, 25 FR 9319, Sept. 29, 1960, as amended by CGFR 63-40, 28 FR 9737, Sept. 6, 1963; CGFR 66-33, 31 FR 15298, Dec. 6, 1966; CGFR 68-32, 33 FR 5726, Apr. 12, 1968; CGD 78-154, 44 FR 13492, Mar. 12, 1979; CGD 84-044, 53 FR 7752, Mar. 10, 1988]

§ 176.25-27 Fire extinguishing equipment—L.

(a) At each initial and subsequent inspection for certification, the provisions of § 176.25-25 shall apply.

(b) At each reinspection conducted in accordance with § 176.10-1(b), such examination of fire extinguishing equipment shall be made as deemed necessary by the Officer in Charge, Marine Inspection.

[CGFR 63-40, 28 FR 9738, Sept. 6, 1963, as amended by CGFR 68-32, 33 FR 5726, Apr. 12, 1968]

§ 176.25-30 Pressure vessels—S.

(a) At each initial and subsequent inspection for certification the marine inspector shall examine and test all boilers and unfired pressure vessels to the extent necessary to determine that their condition is satisfactory and that they are fit for the service for which intended.

(b) At each inspection for certification after the initial inspection, the following examinations and tests shall be held:

(1) All boilers and unfired pressure vessels shall be examined under operating conditions.

(2) The setting of safety valves or relief valves on boilers and unfired pressure vessels shall be checked.

§ 176.25-32

(3) Pressure vessels which required initial Coast Guard shop inspection and stamping, and which are fitted with inspection openings shall be examined internally. Tubular heat exchangers, hydraulic accumulators and those pressure vessels used in refrigeration service need not be examined internally.

(4) All pressure vessels that require initial Coast Guard shop inspection and stamping other than those exempt by the provisions of this paragraph, shall be subjected to hydrostatic test of $1\frac{1}{4}$ times the maximum allowable working pressure.

(5) The following unfired pressure vessels will not normally be subjected to a hydrostatic test:

(i) Tubular heat exchangers.

(ii) Pressure vessels used in refrigeration service.

(iii) Hydraulic accumulators.

(iv) Unfired pressure vessels which have been satisfactorily examined internally by a marine inspector and in which no defects have been found which impair the safety of the pressure vessel.

(v) Pressure vessels which were exempt from initial Coast Guard shop inspection and stamping.

(vi) Pressure vessels which received an initial pneumatic test in lieu of a hydrostatic test as permitted by § 54.10-15 of Subchapter F (Marine Engineering) of this chapter and which cannot be hydrostatically tested.

(c) Main propulsion boilers, auxiliary boilers, and unfired pressure vessels containing liquefied compressed gases or hazardous liquids, shall be given special consideration and shall be subjected to such tests and inspections as deemed necessary and specified by the Officer in Charge, Marine Inspection, to insure that they are in a safe condition. Periodic tests and examinations shall be as described in Part 61 of Subchapter F (Marine Engineering) of this chapter, except heating boilers as defined in Part 53 of Subchapter F of this chapter shall be tested or examined every three years.

[CGFR 60-54, 25 FR 9319, Sept. 29, 1960, as amended by CGFR 63-40, 28 FR 9737, Sept. 6, 1963; CGFR 68-82, 33 FR 18909, Dec. 18, 1968]

46 CFR Ch. I (10-1-90 Edition)

§ 176.25-32 Pressure vessels—L.

(a) At each initial and subsequent inspection for certification, the provisions of § 176.25-30 shall apply except that those examinations and tests required by § 176.25-30 (b)(3) and (b)(4) shall be performed triennially at the time of regular annual inspection.

[CGFR 63-40, 28 FR 9738, Sept. 6, 1963]

§ 176.25-35 Steering apparatus.

(a) At each initial and subsequent inspection for certification and reinspection the marine inspector shall examine and test the main and auxiliary steering apparatus to the extent necessary to determine that its condition is satisfactory and that it is fit for the service intended. The main and auxiliary steering apparatus shall be tested by operation and the inspector shall examine the mechanism throughout its length.

§ 176.25-40 Miscellaneous systems and equipment.

(a) At each initial and subsequent inspection for certification and reinspection the inspector shall examine and test all items in the ship's outfit, such as ground tackle, navigation lights, compass, etc., which are required to be carried by the regulations in this subchapter. Such examination and test shall be to the extent necessary to determine that the condition of the item is satisfactory and that it is fit for the service intended.

(b) Approved work vests, where carried, shall be inspected as provided in § 184.40-15 of this subchapter.

[CGFR 60-54, 25 FR 9319, Sept. 29, 1960, amended by CGFR 68-32, 33 FR 5728, Apr. 12, 1968]

§ 176.25-45 Sanitary inspection.

(a) At each initial and subsequent inspection for certification and reinspection the marine inspector shall examine the passenger and crew quarters, toilet and washing spaces, galleys, serving pantries, lockers, etc., to determine that they are serviceable and in a sanitary condition.

§ 176.35-50 Unsafe practices.

(a) At each initial and subsequent inspection for certification, reinspection and at every other vessel inspection the marine inspector shall require that all observed unsafe practices and hazardous situations be corrected.

(b) At each inspection for certification and reinspection the marine inspector shall examine the bilges and other spaces to see that there is no accumulation of oil or other matter which might create a fire hazard.

Subpart 176.30—Limitations of Inspections

§ 176.30-1 Marine inspector not limited.

(a) Nothing in this part shall be construed as limiting the marine inspector from making such tests or inspections as are reasonable and practicable to be assured of the seaworthiness of the vessel.

Subpart 176.35—International Convention for Safety of Life at Sea, 1974

SOURCE: CGFR 65-9, 30 FR 11494, Sept. 8, 1965, unless otherwise noted.

§ 176.35-1 Vessels subject to requirements.

(a) Except as otherwise provided in this subpart, all mechanically propelled vessels registered in the United States or the Commonwealth of Puerto Rico, which carry more than 12 passengers on an international voyage as defined in 176.35-5 or 176.35-10 shall be in compliance with the applicable requirements of the International Convention for Safety of Life at Sea, 1974.

(b) The International Convention for Safety of Life at Sea, 1974, does not apply to vessels "solely navigating the Great Lakes of North America and the River St. Lawrence as far east as a straight line drawn from Cap de Rosiers to West Point, Anticosti Island and, on the north side of Anticosti Island, the 63d Meridian."

(c) In accordance with Regulation 4, Chapter I (General Provisions) of the International Convention for Safety of Life at Sea, 1974, a vessel which is not normally engaged on an interna-

tional voyage but which, in exceptional circumstances, is required to undertake a single international voyage may be exempted by the Commandant from any of the requirements of the Regulations of the Convention: Provided, That it complies with safety requirements which are adequate in his opinion for the voyage which is to be undertaken.

(d) In accordance with Regulation 1-4 of Part A, Chapter II-1 (Construction—Subdivision and stability, machinery and electrical installations) or Regulation 1-4.1 of Part A, Chapter II-2 (Construction—Fire protection, fire detection and fire extinction) of the International Convention for Safety of Life at Sea, 1974, the Commandant may, if he considers that the sheltered nature and conditions of the voyage are such as to render the application of any specific requirements of Chapters II-1 or II-2 of this Convention unreasonable or unnecessary, exempt from those requirements individual vessels or classes of vessels which, in the course of their voyage, do not proceed more than 20 miles from the nearest land.

(e) In accordance with Regulation 2-1 of Chapter III (Lifesaving Appliances, etc.) of the International Convention for Safety of Life at Sea, 1974, the Commandant, if he considers that the sheltered nature and conditions of the voyage are such as to render the application of the full requirements of Chapter III of this Convention unreasonable or unnecessary, may to that extent exempt from the requirements of Chapter III individual vessels or classes of vessels which, in the course of their voyage, do not go more than 20 miles from the nearest land.

[CGD 90-008, 55 FR 30664, July 26, 1990]

§ 176.35-5 International voyage.

(a) This section describes those voyages which are considered to be "international voyages" for the purposes of this subchapter.

(b) Except as provided in paragraph (c) of this section, the term "international voyage" as used in this subchapter shall have the same meaning as that contained in Regulation 2(d),

Chapter I of the International Convention for Safety of Life at Sea, 1974, i.e., "International voyage means a voyage from a country to which the present convention applies to a port outside such country, or conversely."

(c) The International Convention for Safety of Life at Sea, 1974, does not apply to vessels "solely navigating the Great Lakes of North America and the River St. Lawrence as far east as a straight line drawn from Cap de Rosiers to West Point, Anticosti Island and, on the north side of Anticosti Island, the 63d Meridian." Accordingly, such vessels shall not be considered as being on an "international voyage" for the purpose of this subchapter.

(d) In addition, although voyages between the continental United States and Hawaii or Alaska, and voyages between Hawaii and Alaska are not "international voyages" under the provisions of the International Convention for Safety of Life at Sea, 1974, such voyages are similar in nature and shall be considered as "international voyages" for the purposes of this subchapter.

[CGD 90-008, 55 FR 30864, July 26, 1990]

§ 176.35-10 Voyage between continental United States and Hawaii or Alaska or between Hawaii and Alaska.

(a) Although voyages between the continental United States and Hawaii or Alaska, and voyages between Hawaii and Alaska are not "international voyages" under the provisions of the International Convention for Safety of Life at Sea, 1974, such voyages are similar in nature and shall be considered as "international voyages" for the purposes of this subchapter.

[CGFR 65-9, 30 FR 11494, Sept. 8, 1965, as amended by CGD 90-008, 55 FR 30864, July 26, 1990]

§ 176.35-15 Passenger Ship Safety Certificate.

(a) All vessels, which carry more than 12 passengers on an international voyage, are required to have a "Passenger Ship Safety Certificate."

(b) Any such vessel which is less than 100 gross tons shall meet the applicable requirements of this chapter for vessels on an international voyage.

§ 176.35-20 Exemption Certificate.

(a) A vessel may be exempted by the Commandant from complying with certain requirements of the Convention under his administration upon request made in writing to him and transmitted via the Officer in Charge, Marine Inspection.

(b) When an exemption is granted to a vessel by the Commandant, and in accordance with the Convention, an Exemption Certificate describing such exemption shall be issued through the appropriate Officer in Charge, Marine Inspection, in addition to the Passenger Ship Safety Certificate.

§ 176.35-25 Posting of Convention Certificates.

(a) The certificates described in this subpart, or certified copies thereof, when issued to a vessel shall be posted in a prominent and accessible place on the vessel.

(b) The certificate shall be carried in a manner similar to that described in § 176.01-40 for a certificate of inspection.

§ 176.35-30 Duration of certificates.

(a) The certificates shall be valid for a period of not more than 12 months.

(b) An Exemption Certificate shall not be valid for longer than the period of the Passenger Ship Safety Certificate to which it refers.

(c) The Passenger Ship Safety Certificate may be withdrawn, revoked, or suspended at any time when it is determined the vessel is no longer in compliance with applicable requirements. (See § 2.01-70 of this chapter for procedures governing appeals.)

PART 177—CONSTRUCTION AND ARRANGEMENT

Subpart 177.01—Application and Intent

Sec.
177.01-1 Application.
177.01-5 Intent.

Sec.

Subpart 177.05—Plans

- 177.05-1 Plans required for vessels carrying not more than 150 passengers—S.
- 177.05-3 Plans required for "S" vessels carrying more than 150 passengers, all "L" vessels, and certain other vessels.
- 177.05-5 Plans for sister vessels.

Subpart 177.10—Hull Structure

- 177.10-1 Structural standards.
- 177.10-5 Fire protection.

Subpart 177.13—Subdivision and Stability

- 177.13-1 Requirements.

Subpart 177.15—Means of Escape

- 177.15-1 Requirements.

Subpart 177.20—Ventilation (Other Than Machinery Spaces)

- 177.20-1 Ventilation for closed spaces.
- 177.20-5 Ventilation for crew quarters and passenger spaces.

Subpart 177.25—Crew Accommodations

- 177.25-1 Where required.

Subpart 177.30—Passenger Accommodations

- 177.30-1 Seating.
- 177.30-5 Toilet facilities.
- 177.30-7 Lounge arrangements.

Subpart 177.35—Rails and Guards

- 177.35-1 Deck rails.
- 177.35-5 Storm rails.
- 177.35-10 Vessels carrying vehicles.
- 177.35-15 Guards in hazardous places.

AUTHORITY: 46 U.S.C. 3306, 5115; 49 CFR 1.46.

SOURCE: CGFR 60-54, 25 FR 9323, Sept. 29, 1960, unless otherwise noted.

Subpart 177.01—Application and Intent

§ 177.01-1 Application.

(a) The provisions of this part shall apply to all vessels contracted for on or after June 1, 1958. Vessels contracted for prior to that date shall meet the requirements of this part insofar as is deemed reasonable and practicable by the Officer in Charge, Marine Inspection.

§ 177.01-5 Intent.

(a) The intent of this part is to insure that the scantlings, material, fastenings, workmanship and arrangement of each vessel are such as to provide for safe operation in accordance with the terms of its certificate of inspection. Primary consideration shall be given to the provision of a seaworthy hull, protection against fire, means of escape in case of sudden unexpected casualty, guards and rails in hazardous places, ventilation of closed spaces, and necessary facilities for passengers and crew.

Subpart 177.05—Plans

§ 177.05-1 Plans required for vessels carrying not more than 150 passengers—S.

(a) Except as otherwise provided in paragraphs (c) and (d) of this section and § 177.05-5, the owner or builder shall, prior to the start of construction if practicable, or in any case prior to the initial inspection of the vessel, submit for approval by the Officer in Charge, Marine Inspection, of the inspection zone where the vessel is to be inspected, at least one copy of each of the following plans:

- (1) Midship section.
- (2) Outboard profile.
- (3) Inboard profile.
- (4) Arrangement of decks.
- (5) Machinery installation.
- (6) Electrical installation.
- (7) Fuel tanks.
- (8) Piping systems.
- (9) Hull penetrations and shell connections.

(b) Additional prints of the required plans may, at the owner's option, be submitted for approval. Such additional copies will be stamped and returned for the owner's records.

(c) The Officer in Charge, Marine Inspection, may accept specifications, sketches, photographs, line drawings or written descriptions in lieu of any or all of the required drawings provided the required information is adequately detailed thereon.

(d) The Officer in Charge, Marine Inspection, need not require some or all of the plans called for by paragraph (a) of this section if, to his own knowledge, the design and construction

§ 177.05-3

tion of the vessel are of a type which has a proven record of safe operation in similar service upon similar waters.

[CGFR 60-54, 25 FR 9323, Sept. 29, 1960, as amended by CGFR 63-40, 28 FR 9738, Sept. 6, 1963]

§ 177.05-3 Plans required for "S" vessels carrying more than 150 passengers, all "L" vessels, and certain other vessels.

(a) *S and L*. The owner or builder must, prior to the start of construction if practicable, or in any case prior to the initial inspection of the vessel, submit for approval to the Officer in Charge, Marine Inspection, of the inspection zone where the vessel is to be inspected, at least two copies of each of the plans listed in § 177.05-1(a).

(b) *S and L*. Additional plans, calculations, and data must be submitted as required by Subchapter S of this chapter.

[CGD 79-023, 48 FR 51052, Nov. 4, 1983]

§ 177.05-5 Plans for sister vessels.

(a) Plans will not be required for any vessel which is a sister ship to a vessel, the approved plans for which are already on file at any Marine Inspection Office: *Provided*, That the owner of the plans authorizes their use for the new construction.

Subpart 177.10—Hull Structure

§ 177.10-1 Structural standards.

(a) In general, compliance with the standards established by a recognized classification society¹ will be considered satisfactory evidence of the structural adequacy of a vessel. When scantlings differ from such standards and it can be demonstrated that craft approximating the same size, power and displacement have been built to such scantlings and have been in satisfactory service insofar as structural adequacy is concerned for a period of at least 5 years, such scantlings may be approved. A detailed structural analy-

¹Lloyds' "Rules for the Construction and Classification of Composite and Steel Yachts" and Lloyds' "Rules for the Construction and Classification of Wood Yachts" are acceptable for this purpose.

46 CFR Ch. I (10-1-90 Edition)

sis may be required for specialized types or integral parts thereof.

(b) Special consideration will be given to:

(1) The structural requirements of vessels not contemplated by the standards of a recognized classification society; or,

(2) The use of materials not specifically included in these standards.

§ 177.10-5 Fire protection.

(a) The general construction of the vessel shall be such as to minimize fire hazards insofar as reasonable and practicable. Vessels contracted for on or after July 1, 1961, which carry more than 150 passengers shall meet the requirements of Subpart 72.05 of Subchapter H (Passenger Vessels) of this chapter. The application of these requirements to specific vessels shall be as determined by the Officer in Charge, Marine Inspection.

(a-1) Except for a vessel complying with the requirements contained in paragraph (a-2) of this section, each hull, structural bulkhead, deck, or deckhouse made of fibrous glass reinforced plastic on each vessel that carries 150 passengers or less must be constructed with fire retardant resin laminates of which have been demonstrated to meet military specification MIL-R-21607 after 1-year exposure to weather. Military specification MIL-R-21607 may be obtained from the Commanding Officer, Naval Supply Depot, 5801 Tabor Avenue, Philadelphia, PA 19120.

(a-2) Each hull, structural bulkhead, deck, or deckhouse, made of fibrous reinforced plastic on a vessel that carries 150 passengers or less, that was certificated on July 11, 1973, and remains certificated may continue in service. Any repairs must be as follows:

(1) Minor repairs and alterations must be made to the same standard as the original construction or a higher standard; and

(2) Major alterations and conversions must comply with the requirements of this subpart.

(b) Internal combustion engine exhausts, boiler and galley uptakes, and similar sources of ignition shall be

§ 177.30-1

pt clear of and suitably insulated
om any woodwork or other combusti-
e matter.

(c) Lamp, paint, and oil lockers and
illar compartments shall be con-
ucted of metal or lined with metal.

CFR 60-54, 25 FR 9323, Sept. 29, 1960, as
ended by CGFR 63-40, 28 FR 9738, Sept.
1963; CGD 72-68R, 37 FR 26111, Dec. 8,
72]

Subpart 177.13—Subdivision and Stability

177.13-1 Requirements.

Each vessel must meet the applica-
requirements in Subchapter S of
is chapter.

GD 79-023, 48 FR 51052, Nov. 4, 1983]

Subpart 177.15—Means of Escape

177.15-1 Requirements.

(a) Except as otherwise provided in
is section, all vessels shall be provid-
with not less than two avenues of
ape from all general areas accessi-
e to the passengers or where the
ew may be quartered or normally
mployed, so located that if one is not
ailable the other may be. At least
e of the avenues of escape shall be
ependent of watertight doors. Win-
ws and windshields of sufficient size
d proper accessibility may be used
one avenue of escape.

(b) Where the length of the com-
rtment is less than 12 feet, one ver-
al means of escape will be accepta-
e under the following conditions:

(1) There is no source of fire in the
ace, such as galley stove, heater,
e, and the vertical escape is remote
om the engine or fuel tank space; or,
(2) The arrangement is such that
e installation of two means of
ape does not materially improve
e safety of the vessel or those on
ard.

Subpart 177.20—Ventilation (Other Than Machinery Spaces)

177.20-1 Ventilation for closed spaces.

(a) All enclosed spaces within the
essel shall be properly vented or ven-
ated. Where such openings would

endanger the vessel under adverse
weather conditions, means shall be
provided to close them.

§ 177.20-5 Ventilation for crew quarters and passenger spaces.

(a) All crew and passenger spaces
shall be adequately ventilated in a
manner suitable to the purpose of the
space.

Subpart 177.25—Crew Accommodations

§ 177.25-1 Where required.

(a) All vessels with crew members
living on board shall be provided with
crew accommodations of sufficient
size, adequate construction, and with
suitable equipment to provide for the
protection and accommodation of the
crew in a manner practicable for the
size, facilities, and service of the
vessel.

Subpart 177.30—Passenger Accommodations

§ 177.30-1 Seating.

(a) Seating accommodations for pas-
sengers are required to be provided
only when the maximum number of
passengers permitted has been deter-
mined by using the fixed seating crite-
ria in § 176.01-25(b) of this subchap-
ter.

(b) Where fixed seats are installed,
the seat spacing shall be such as to
provide for ready escape in case of fire
or other casualty.

(c) Fixed seats shall be installed as
follows, except that special consider-
ation may be given in cases where it
can be shown that escape over the side
can be made readily through windows
or other openings in the way of seats:

(1) Aisles not over 15 feet long shall
be not less than 24 inches wide.

(2) Aisles over 15 feet long shall be
not less than 30 inches wide.

(3) Where the seats are in rows the
distance from seat front to seat front
shall be not less than 30 inches.

(d) In general, portable or tempo-
rary seats shall be arranged as speci-
fied for fixed seating.

§ 177.30-5

46 CFR Ch. I (10-1-90 Edition)

§ 177.30-5 Toilet facilities.

(a) Vessels shall be provided with toilets and wash basins in accordance with Table 177.30-5(a) except that vessels operating on short runs of approximately 30 minutes or less need not be fitted with toilets or wash basins.

TABLE 177.30-5(a)

Number of passengers	Toilets	Wash basins
49 and less	1	0
Over 49	1 for men	1 for men
(Men and women)	1 for women	1 for women
Over 49	2	1
(Men only)		

(b) All toilets and wash basins provided shall be fitted with adequate plumbing. Facilities for men and women shall be in separate compartments.

§ 177.30-7 Lounge arrangements.

(a) The specific requirements in this section apply to passenger lounge areas located below the main deck. Variation from these requirements may be authorized by the Officer in Charge, Marine Inspection, for unusual arrangements or design: *Provided*, That there is no significant reduction of space, accessibility or sanitation.

(b) Bunks, where installed, shall have a minimum length of 74 inches and a minimum width of 24 inches. They may be constructed of wood or metal. Mattress is to be covered with material which has been treated to give it fire resistant properties and which will provide the mattress with a reasonably smooth surface free of sharp depressions. (Example: Treated duck stretched smoothly, fully sewn, covering the basic mattress.) Arrangement shall be not more than three high, with a minimum distance of 24 inches vertically between bunks; ladders or steps shall be provided for each top bunk. Construction and arrangement shall allow free and unobstructed access to the bunks. Each bunk shall be immediately adjacent to an aisle leading to a means of escape from the lounge area.

(c) Means of escape from lounge areas shall be provided in accordance with Subpart 177.15. Aisles alongside bunks shall be not less than 24 inches in width and after the joining of two or more aisles, the width of the aisle leading to an escape shall be not less than 42 inches. Head room in lounge areas shall be not less than 74 inches which may be reduced at the sides to the space to allow for camber, wiring, ventilation ducts or piping. However, main aisles leading to exits shall be not less than 74 inches clear height. All aisles shall be kept clear of obstructions.

(d) Covered metal trash containers shall be provided in lounge areas and the spaces shall be maintained to minimize fire and safety hazards and preserve sanitary conditions. Portable fire extinguishers shall be provided as indicated in Subpart 181.30 of this subchapter.

[CGFR 63-40, 28 FR 9738, Sept. 6, 1963]

Subpart 177.35—Rails and Guards

§ 177.35-1 Deck rails.

(a) Except as otherwise provided in this section, rails or equivalent protection shall be installed near the periphery of all weather decks accessible to passengers and crews. Where special limitations make deck rails impracticable, such as at narrow catwalks in way deckhouse sides, hand grabs may be substituted.

(b) Rails shall consist of evenly spaced courses and the spacing between courses shall be not greater than 12 inches except as provided in paragraph (f) of this section. The lower rail courses may not be required where all or part of the space below the upper rail course is fitted with bulwark, chain link fencing, wire mesh, or the equivalent.

(c) On passenger decks of vessels engaged in a ferry or excursion type operation, rails shall be at least 42 inches high. The space below the rail shall be fitted with bulwarks, chain link fencing, wire mesh, or the equivalent.

(d) On sport fishing vessels where it can be shown that higher rails would interfere with the normal operation

the vessel, rails of at least 30 inches height may be permitted.

(e) Where the principal business of the vessel requires the discharge of personnel in a seaway, the peripheral rails may be wholly or partially omitted or reduced in height to not less than 30 inches. When such rails are omitted, center rails or other suitable hand holds shall be substituted therefor.

(f) For vessels subject to the 1966 International Convention on Load Lines the height of rails and bulwarks installed at the peripheries of the freeboard and superstructure decks shall be at least 39½ inches. However where this height would interfere with the normal operation of the ship, a lesser height may be approved if the cognizant Officer in Charge, Marine Inspection is satisfied that adequate protection is provided. The opening below the lowest course shall not be more than 9 inches and the courses shall not be more than 15 inches apart.

(g) All rails other than those noted in the preceding paragraphs, shall be at least 36 inches high.

(h) Sailing vessels, small vessels of the open launch type, and other vessels not specifically covered elsewhere in this section shall have such rails or equivalent protection as considered necessary by the Officer in Charge, Marine Inspection.

[CGFR 60-64, 25 FR 9319, Sept. 29, 1960, as amended by CGFR 69-72, 34 FR 17503, Oct. 18, 1969]

§ 177.35-5 Storm rails.

(a) Suitable storm rails or hand grabs shall be installed where necessary in all passageways, at deckhouse sides, and at ladders and hatches where passengers or crew might have normal access.

§ 177.35-10 Vessels carrying vehicles.

(a) On vessels carrying vehicles, suitable chains, cable, or other barriers shall be installed at the ends of the vehicle runways. In addition, suitable gates, rails, or other devices shall be installed as a continuation of the regularly required rails.

§ 177.35-15 Guards in hazardous places.

(a) Suitable covers, guards, or rails shall be installed in way of all exposed and hazardous places such as gears, machinery, etc.

PARTS 178—179 [RESERVED]

PART 180—LIFESAVING EQUIPMENT

Subpart 180.01—Application and Intent

Sec.

180.01-1 Application.

180.01-5 Intent.

Subpart 180.05—General Provisions Pertaining to Lifesaving Equipment

180.05-1 Equipment of an approved type.

180.05-5 Equipment installed but not required.

Subpart 180.10—Primary Lifesaving Equipment Required

180.10-1 General.

180.10-5 Requirements for vessels in ocean or coastwise service.

180.10-15 Requirements for vessels in Great Lakes service.

180.10-20 Requirements for vessels in lakes, bays, and sounds service.

180.10-25 Requirements for vessels in river service.

180.10-30 Substitutions.

180.10-35 Rescue boat—L.

Subpart 180.15—Equipment for Life Floats and Buoyant Apparatus

180.15-1 Equipment required.

180.15-5 Description of equipment for life floats and buoyant apparatus.

180.15-10 Stowage of equipment.

Subpart 180.20—Stowage and Marking of Lifesaving Appliances

180.20-1 Stowage of lifesaving appliances.

180.20-5 Marking.

Subpart 180.25—Life Preservers

180.25-1 Type required.

180.25-5 Number required.

180.25-10 Distribution and stowage.

180.25-15 Marking.

180.25-20 Personal flotation device lights.

180.25-25 Retroreflective material.

§ 180.01-1

Sec.

Subpart 180.30 Ring Life Buoys and Water Lights

- 180.30-1 General.
- 180.30-5 Number and size required.
- 180.30-10 Location, distribution, and securing.

Subpart 180.35—Pyrotechnic Distress Signals

- 180.35-1 General.
- 180.35-5 Number required.
- 180.35-10 Stowage.

Subpart 180.40—Emergency Position Indicating Radiobeacon (EPIRB)

- 180.40-1 Emergency position indicating radiobeacon (EPIRB).

AUTHORITY: 46 U.S.C. 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGFR 60-54, 25 FR 9329, Sept. 29, 1960, unless otherwise noted.

Subpart 180.01—Application and Intent

§ 180.01-1 Application.

(a) The provisions of this part shall apply to all vessels except as specifically noted in this part.

§ 180.01-5 Intent.

(a) The intent of this part is to insure that each vessel carry sufficient lifesaving equipment to provide for timely rescue and survival of the personnel on board in the event of a casualty to the vessel. Due consideration will be given to the number of persons carried and the hazards of the route permitted.

Subpart 180.05—General Provisions Pertaining to Lifesaving Equipment

§ 180.05-1 Equipment of an approved type.

(a) Where equipment in this part is required to be of an approved type, such equipment requires the specific approval of the Commandant. Notifications regarding approvals are published in the FEDERAL REGISTER, and in addition are contained in Coast Guard publication CG-190, "Equipment Lists."

(b) Specifications for lifesaving equipment items required to be of an

46 CFR Ch. I (10-1-90 Edition)

approved type have been promulgated and are contained in Subchapter Q (Specifications) of this chapter. In general, such specifications are of interest only to the manufacturer of specific items of equipment. The subparts in Subchapter Q containing specifications for the lifesaving equipment required by this part are as follows:

(1) Life floats.....	160.027.
(2) Buoyant apparatus.....	160.010.
(3) Lifeboats.....	160.035.
(4) Life rafts.....	160.018.
(5) Inflatable life rafts.....	160.051.
(6) Life preservers.....	160.002, 160.005, 160.055.
(7) Ring Life Buoys.....	160.050.
(8) Water lights.....	161.010.
(9) Distress signals:	
Red flare.....	160.021.
Orange smoke.....	160.037.
Combination flare and smoke..	160.023.
(10) Type A EPIRB's.....	161.011.

[CGFR 60-54, 25 FR 9329, Sept. 29, 1960, as amended by CGFR 65-9, 30 FR 11495, Sept. 8, 1965; CGD 73-24R, 39 FR 10140, Mar. 18, 1974; CGD 79-165a, 45 FR 64188, Sept. 28, 1980; CGD 80-155a, 47 FR 10559, Mar. 11, 1982]

§ 180.05-5 Equipment installed but not required.

(a) *S and L.* Except as further modified in this section, where items of lifesaving equipment are not required, but are installed, such equipment and its installation shall meet the requirements of this part. However, the Commandant may, after suitable investigations and tests, accept lifesaving devices in excess of those required, which are of a type not contemplated by the regulations in this part, if the safety of those on board is improved thereby.

(b) *S.* Special purpose water safety buoyant devices (such as water ski vests, hunter's buoyant jackets, etc.) in order to be of an approved type shall be constructed, listed and labeled in accordance with Subpart 160.064 of Subchapter Q (Specifications) of this chapter. Small passenger vessels may carry special purpose water safety buoyant devices of approved type in excess equipment.

CGFR 64-30, 29 FR 7390, June 6, 1964]

Subpart 180.10—Primary Lifesaving Equipment Required

180.10-1 General.

(a) All life floats and buoyant apparatus shall be of approved types.

(b) The term "primary lifesaving equipment" means a lifeboat or an acceptable substitute. The acceptable substitute may include liferafts, lifeboats, rescue boats, and buoyant apparatus under certain conditions. Life preservers and ring buoys are not included in the definitions of "primary lifesaving equipment."

[CGFR 60-54, 25 FR 9329, Sept. 29, 1960, as amended by CGFR 68-32, 33 FR 5726, Apr. 12, 1968]

180.10-5 Requirements for vessels in ocean or coastwise service.

(a) Except as otherwise provided in this section, vessels in ocean service shall carry sufficient life floats for all persons on board, and vessels in coastwise service shall carry sufficient life floats or buoyant apparatus for all persons on board.

(1) Vessels whose routes are restricted to 20 miles from a harbor of safe refuge shall carry life floats or buoyant apparatus for not less than 50 percent of all persons on board.

(2) For vessels operating not more than one mile from land, the Officer in Charge, Marine Inspection, may permit operation with reduced amounts of life floats or buoyant apparatus when in his opinion it is safe to do so. In permitting such reduction the Officer in Charge, Marine Inspection, shall consider the vessel, its scope of operation and the hazards of the route.

(b) After July 1, 1968, all lifefloats and buoyant apparatus shall be international orange in color.

[CGFR 60-54, 25 FR 9329, Sept. 29, 1960, as amended by CGFR 68-32, 33 FR 5726, Apr. 12, 1968]

180.10-15 Requirements for vessels in Great Lakes service.

(a) Except as otherwise provided in this section, vessels in Great Lakes service shall carry sufficient life floats

§ 180.10-30

or buoyant apparatus for not less than 50 percent of all persons on board.

(1) Vessels navigating not more than one mile from land are not required to carry life floats or buoyant apparatus.

(b) After July 1, 1968, all lifefloats and buoyant apparatus shall be international orange in color.

[CGFR 60-54, 25 FR 9329, Sept. 29, 1960, as amended by CGFR 68-32, 33 FR 5726, Apr. 12, 1968]

§ 180.10-20 Requirements for vessels in lakes, bays, and sounds service.

(a) Except as otherwise provided in this section, vessels in lakes, bays, and sounds service shall carry sufficient life floats or buoyant apparatus for not less than 30 percent of all persons on board.

(1) Vessels navigating not more than 1 mile from land are not required to carry life floats or buoyant apparatus.

(b) After July 1, 1968, all lifefloats and buoyant apparatus shall be either international orange or white in color.

[CGFR 60-54, 25 FR 9329, Sept. 29, 1960, as amended by CGFR 68-32, 33 FR 5726, Apr. 12, 1968]

§ 180.10-25 Requirements for vessels in river service.

(a) Except as otherwise provided in this section, vessels in river service shall carry sufficient life floats or buoyant apparatus for not less than 10 percent of all persons on board.

(1) Vessels navigating not more than 1 mile from land are not required to carry life floats or buoyant apparatus.

§ 180.10-30 Substitutions.

(a) Lifeboats and rigid type life rafts of an approved type may be substituted for any portion of the primary lifesaving equipment required. Such boats and rafts shall be equipped and stowed as required by the Officer in Charge, Marine Inspection.

(b) Suitable dinghies, dories, skiffs, etc., may be substituted for any portion of the primary lifesaving equipment required, under such conditions as may be determined by the Officer in Charge, Marine Inspection.

(c) Inflatable life rafts of an approved type may be substituted for

§ 180.10-35

any portion of the primary lifesaving equipment required.

(d) Ring life buoys of an approved type may be substituted for a portion of the primary lifesaving equipment required. One ring life buoy shall be required for each person accommodated and no more than 2 ring life buoys may be used in the substitution. These ring life buoys when provided, shall be in addition to the ring life buoy required by this part.

§ 180.10-35 Rescue boat—L.

(a) A suitable rescue boat shall be required except when, in the opinion of the Officer in Charge, Marine Inspection, the vessel is of such design and operating characteristics that the vessel itself provides a fully satisfactory rescue platform. For protected waters, a rescue boat constructed in accordance with Subpart 160.056 of Subchapter Q (Specifications) of this chapter is acceptable in meeting the intent of this paragraph. For exposed waters, a more seaworthy rescue boat may be required but in no case shall more than one approved lifeboat suitable for rescue work be required.

[CGFR 68-65, 33 FR 19992, Dec. 28, 1968]

Subpart 180.15—Equipment for Life Floats and Buoyant Apparatus

§ 180.15-1 Equipment required.

(a) Each life float shall be fitted with a life line and shall be equipped with two paddles, a water light and a painter.

(b) Each buoyant apparatus shall be fitted with a life line and shall be equipped with a water light and painter.

§ 180.15-5 Description of equipment for life floats and buoyant apparatus.

(a) *Life line.* The life line shall be properly secured around the sides and ends of the life float or buoyant apparatus, festooned in bights not longer than 3 feet, with a seine float in each bight, which float may be omitted if the line is of an inherently buoyant material and absorbs little or no water. The life line shall be of a size and strength not less than ¾-inch diameter manilla.

46 CFR Ch. I (10-1-90 Edition)

(b) *Paddles.* Paddles shall be not less than 4 feet long.

(c) *Painter.* The painter must—

(1) Be at least 30 m (100 ft.) long.

(2) Have a breaking strength of at least 6.7 kN (1500 lb.), except that if the capacity of the life float or buoyant apparatus is 50 persons or more, the breaking strength must be at least 13.4 kN (3000 lb.).

(3) Be of a dark color if synthetic, or of a type certified to be resistant to deterioration from ultraviolet light, and

(4) Be stowed in such a way that it runs out freely when the life float or buoyant apparatus floats away from the sinking vessel.

(d) *Water light.* (1) The water light must be—

(i) Of an approved automatic electric type, constructed in accordance with Subpart 161.010 of this chapter, except as allowed under paragraph (d)(2) of this section; and

(ii) Attached to the life float or buoyant apparatus by a 12-thread manilla or equivalent synthetic lanyard, at least 5.5 meters (18 feet) in length.

(2) A water light constructed in accordance with former Subpart 160.012 or 161.001 of this chapter that was installed before January 1, 1972 may be retained in an existing installation as long as it is maintained in good condition.

[CGFR 60-54, 25 FR 9329, Sept. 29, 1960, as amended by CGD 79-165a, 45 FR 64188, Sept. 29, 1980; CGD 79-167, 47 FR 41378, Sept. 20, 1982]

§ 180.15-10 Stowage of equipment.

(a) Paddles shall be lashed on the sides of the life floats to which they belong.

[CGFR 60-54, 25 FR 9329, Sept. 29, 1960, as amended by CGD 79-165a, 45 FR 64188, Sept. 29, 1980]

Subpart 180.20—Stowage and Marking of Lifesaving Appliances

§ 180.20-1 Stowage of lifesaving appliances.

(a) Each life float and buoyant apparatus must be secured to the vessel by a painter and a float-free link.

(1) The float-free link must be—

ified to meet Subpart 160.073 chapter,

proper strength for the size of float or buoyant apparatus as on its identification tag, and secured to the painter at one end, secured to the vessel on the other end.

The means by which the float-free link is attached to the vessel must have a breaking strength of at least the breaking strength of the float-free link.

The float-free link must be synthetic, be of a dark color or certified to be resistant to degradation from ultraviolet light, and metal, be corrosion resistant.

The life float or buoyant apparatus must not have a painter attaching, a means for attaching must be provided by a wire that—

(1) encircles the body of the device, and will not slip off,

(2) has a breaking strength that is at least the breaking strength of the float-free link, and

(3) is synthetic, is of a dark color or certified to be resistant to degradation from ultraviolet light.

The float-free link described in paragraphs (a)(1) and (a)(2) of this section is not required if the vessel operates only in waters which have a maximum wave height less than the length of the vessel.

If the vessel carries more than one life float or buoyant apparatus, the floats and buoyant apparatus must be grouped and each group secured by a single painter, provided the combined weight of each group does not exceed 185 kg (400 lb.).

Each life float and buoyant apparatus must be individually attached to the vessel by a line that meets § 180.15-5 and (c)(3) and which is long enough so that each can float without touching any other life float or buoyant apparatus in the group, and the strength of the float-free link must be at least the strength of the painter. The breaking strength of the painter in § 180.15-5(c)(2) is determined by the combined capacity of the group of floats and buoyant apparatus.

(6) Stowing of life floats and buoyant apparatus must allow easy launching. Life floats and buoyant apparatus over 185 kg (400 lb.) must not require lifting before launching.

(7) Life floats and buoyant apparatus must not be secured to the vessel except by the painter and by lashings which can be easily released or hydraulic releases. They must not be stowed in tiers more than 1.2 m (4 ft.) high. Tiers of life floats or buoyant apparatus must not interfere with navigation of the vessel. When stowed in tiers, the separate units must be kept apart by spacers.

(8) There must be means to prevent shifting.

(e) Each hydraulic release used in the installation of any liferaft, inflatable liferaft, lifefloat, or buoyant apparatus must meet Subpart 160.062 of this chapter.

[CGD 79-167, 47 FR 41379, Sept. 20, 1982]

§ 180.20-5 Marking.

(a) All life floats and buoyant apparatus shall be conspicuously marked with the vessel's name. In addition the number of persons allowed on each life float or buoyant apparatus shall be conspicuously marked or painted thereon in letters and numbers at least 1½ inches high. (This requirement is also in § 185.30-5 of this subchapter.)

(b) Any lifeboat, life raft, or other suitable boat accepted as primary lifesaving equipment shall be marked with its allowed capacity in persons, and with the name of the vessel in letters and figures at least 2 inches high, except that inflatable life rafts shall be marked by the manufacturer or service facility as required by Subpart 160.051 of Subchapter Q (Specifications) of this chapter and no additional markings are required. (This requirement is also in § 185.30-5 of this subchapter.)

Subpart 180.25—Life Preservers

§ 180.25-1 Type required.

(a) All life preservers shall be of an approved type.

(b) All kapok and fibrous glass life preservers which do not have plastic-

§ 180.25-5

covered pad inserts, as required by Subparts 160.002 and 160.005 of Subchapter Q (Specifications) of this chapter, shall be removed from service.

(c) Cork and balsa wood life preservers, constructed in accordance with the applicable provisions of Subpart 160.003 or 160.004 and manufactured as approved life preservers prior to July 1, 1965, may be accepted as new or replacement equipment required by this subchapter if such life preservers are servicable and in good condition to the satisfaction of the Officer in Charge, Marine Inspection: *Provided, however,* That such life preservers bearing basic Approval No. 160.003 or 160.004 shall not be considered as approved equipment meeting the requirements for those passenger ships on an international voyage, constructed or contracted for on or after May 26, 1965.

[CGFR 65-9, 30 FR 11495, Sept. 8, 1965]

§ 180.25-5 Number required.

(a) All vessels shall be provided with an approved adult type life preserver for each person carried. In addition, unless the service is such that children are never carried, there shall be provided a number of approved life preservers suitable for children equal to at least 10 percent of the total number of persons carried.

(b) In addition to the life preservers required by paragraph (a) of this section, all vessels on an international voyage and carrying more than 12 passengers shall be provided with approved type life preservers for 5 percent of the persons carried.

[CGFR 60-54, 25 FR 9329, Sept. 29, 1960, as amended by CGFR 68-32, 33 FR 5727, Apr. 12, 1968]

§ 180.25-10 Distribution and stowage.

(a) Life preservers shall be distributed through the upper part of the vessel in protected places convenient to the persons on board.

(b) If practicable, life preserver containers shall be so designed as to allow the life preservers to float free.

(c) Life preservers for children, when provided, shall be stowed separately.

46 CFR Ch. I (10-1-90 Edition)

§ 180.25-15 Marking.

(a) All life preservers shall be marked with the vessel's name. (This requirement is also in § 185.30-5(c) of this subchapter.)

(b) Where life preservers are stowed so that they are not readily visible to passengers, the containers in which they are stowed shall be marked "life preservers" and with the number contained therein, in at least 1-inch letters and figures. This legend shall indicate the separate stowage of children's life preservers. (This requirement is also in § 185.30-10(a) of this subchapter.)

§ 180.25-20 Personal flotation device lights.

(a) Each life preserver carried on a vessel engaged in ocean, coastwise, or Great Lakes service after June 30, 1980, must have a personal flotation device light that is approved under Subpart 161.012 of this chapter.

(b) Each light required by this section must be securely attached to the front shoulder area of a life preserver.

(c) Vessels with Certificates of Inspection endorsed only for routes that do not extend more than 20 miles from a harbor of safe refuge are not required to comply with this section.

[CGD 76-028, 44 FR 38788, July 2, 1979]

§ 180.25-25 Retroreflective material.

(a) Each life preserver carried on a vessel after June 30, 1980, must have at least 200 sq. cm (31 sq. in.) of retroreflective material attached on its front side, at least 200 sq. cm on its back side, and at least 200 sq. cm of material on each of its reversible sides.

(b) Retroreflective material required by this section must be Type I material that is approved under Subpart 164.018 of this chapter.

(c) The retroreflective material attached on each side of a life preserver must be divided equally between the upper quadrants of the side, and the material in each quadrant must be attached as closely as possible to the shoulder area of the life preserver.

[CGD 76-028, 44 FR 38788, July 2, 1979]

Part 180.30—Ring Life Buoys and Water Lights

180-1 General.

Each ring life buoy must be of an approved type, constructed in accordance with Subpart 160.050 of this chapter, except a ring life buoy that is approved under former Subpart 160.09 of this chapter may be used if in good and serviceable condition. Each water light must be of an approved automatic electric type, constructed in accordance with Subpart 160.10 of this chapter, except as allowed under paragraph (c) of this section.

Except as prohibited in paragraph (d) of this section, a water light constructed in accordance with former Subpart 160.012 or 161.001 of this chapter that was installed before January 1, 1972, may be retained in an existing installation as long as it is maintained in good condition.

No vessel attending offshore petroleum operations may carry a water light that produces an open flame.

[D 79-165a, 45 FR 64188, Sept. 29, 1980, as amended by CGD 80-155a, 47 FR 10559, Feb. 11, 1982]

180-5 Number and size required.

(a) *S*. All vessels shall be fitted with one ring life buoy of not less than 24 inches in diameter, except that vessels less than 26 feet in length may use one ring life buoy of not less than 20 inches in diameter.

(b) *L*. All vessels shall be fitted with one ring life buoy of not less than 24 inches in diameter.

(c) *S and L*. Vessels not limited to nighttime operation shall be provided with an approved water light.

(d) *S and L*. Ring life buoys used on vessels on an international voyage shall be orange in color.

[FR 63-40, 28 FR 9739, Sept. 6, 1963, as amended by CGFR 65-9, 30 FR 11495, Sept. 15, 1965]

180-10 Location, distribution, and securing.

(a) *S*. The ring life buoy shall be so placed as to be readily accessible. It shall be capable of being cast loose, and shall not be permanently secured in

any way, and shall have attached to it a line at least 60 feet in length.

(b) *L*. The ring life buoys shall be so placed as to be readily accessible. They shall be capable of being cast loose, shall not be permanently secured in any way, and one of the ring life buoys shall have attached to it a line at least 60 feet in length.

(c) *S and L*. The water light, which is to be attached for nighttime operation, shall be stowed close to or attached to that ring life buoy which is located nearest the pilothouse.

[CGFR 63-40, 28 FR 9739, Sept. 6, 1963]

Subpart 180.35—Pyrotechnic Distress Signals

§ 180.35-1 General.

(a) All pyrotechnic distress signals shall be of an approved type.

(b) Service use of distress signals shall be limited to a period of 3 years from date of manufacture, and replacement shall be made no later than the first inspection for certification or reinspection after the date of expiration.

§ 180.35-5 Number required.

(a) Except as otherwise provided in this section, all vessels shall carry pyrotechnic distress signals as follows:

(1) 6 hand red flare distress signals, and 6 hand orange smoke distress signals; or,

(2) 12 hand combination flare and smoke distress signals.

(b) Pyrotechnic distress signals are not required on vessels operating on short runs. A vessel is considered to be on a short run when its operating time away from a dock is limited to approximately 30 minutes.

§ 180.35-10 Stowage.

(a) All pyrotechnic distress signals shall be carried within the pilothouse or in other location considered suitable by the Officer in Charge, Marine Inspection.

(b) All pyrotechnic distress signals shall be stowed in a portable watertight container.

§ 180.40-1

Subpart 180.40—Emergency Position Indicating Radiobeacon (EPIRB)

§ 180.40-1 Emergency position indicating radiobeacon EPIRB.

(a) Each vessel in ocean and coastwise service must have an approved Class A emergency position indicating radiobeacon (EPIRB) that is—

- (1) Operative;
- (2) Stowed where it is readily accessible for testing and use; and
- (3) Stowed in a manner so that it will float free if the vessel sinks.

(b) Compliance with paragraph (a) of this section is not required for a coastwise vessel—

(1) That carries a VHF radiotelephone that complies with the FCC requirements; and

(2) Whose Certificate of Inspection is endorsed for a route which does not extend more than 20 miles from a harbor of safe refuge.

(c) Each vessel certificated for Great Lakes service, and each other vessel operating on the Great Lakes that is not required to have a Class A EPIRB meeting paragraph (a) of this section must have one Class C EPIRB installed in a readily accessible location, at or near the principal steering station.

[CGD 73-24R, 39 FR 10140, Mar. 18, 1974, as amended by CGD 80-024, 49 FR 40409, Oct. 16, 1984]

PART 181—FIRE PROTECTION EQUIPMENT

Subpart 181.01—Application and Intent

Sec.

- 181.01-1 Application.
181.01-5 Intent.

Subpart 181.05—Approved Fire Protection Equipment

- 181.05-1 General.
181.05-5 Equipment installed but not required.

Subpart 181.10—Fire Pumps

- 181.10-1 Power fire pump.
181.10-5 Hand fire pumps.

46 CFR Ch. I (10-1-90 Edition)

Sec.

Subpart 181.15—Fire Main System

- 181.15-1 Where required.
181.15-5 Fire main and hydrants.
181.15-10 Fire hose.

Subpart 181.20—Fixed Fire Extinguishing System

- 181.20-1 Where required.
181.20-5 Type system required.
181.20-10 Amount of CO₂ gas required.
181.20-15 Controls.
181.20-20 Piping.
181.20-25 Discharge outlets.
181.20-30 Cylinders.
181.20-35 Closure of openings.

Subpart 181.25—Manual Sprinkling System

- 181.25-1 Where required.
181.25-5 Installation.

Subpart 181.30—Portable Fire Extinguishers

- 181.30-1 Required number, type and location.
181.30-5 Approved extinguishers.
181.30-10 Installation and location.
181.30-12 Semiportable fire extinguishers.

Subpart 181.35—Fire Axe

- 181.35-1 Required number and location—L.

AUTHORITY: 46 U.S.C. 3306; 49 CFR 1.46.

SOURCE: CGFR 60-54, 25 FR 9330, Sept. 29, 1960, unless otherwise noted.

Subpart 181.01—Application and Intent

§ 181.01-1 Application.

(a) The provisions of this part shall apply to all vessels except as specifically noted in this part.

(b) Installations of power fire pumps, fire main systems and fixed fire extinguishing systems on vessels contracted for before June 1, 1958, shall meet the requirements of this part insofar as deemed reasonable and practicable by the Officer in Charge, Marine Inspection.

§ 181.01-5 Intent.

(a) The intent of this part is to insure that each vessel is provided with safe, readily available and sufficient firefighting equipment of the type necessary to extinguish any fires which are likely to be encountered in

nal operation. Due consideration be given to hazards caused by the type of fuel, construction material, equipment, cargo, etc.

FR 66-33, 31 FR 15298, Dec. 6, 1966]

Subpart 181.05—Approved Fire Protection Equipment

181.05-1 General.

Where equipment in this part is required to be of an approved type, the equipment requires the specific approval of the Commandant.

Notifications regarding approvals published in the FEDERAL REGISTER and in addition are contained in Coast Guard publication CG-190, "Equipment Lists".

181.05-5 Equipment installed but not required.

(c) Except as further modified in this section, where fire extinguishing equipment or equipment are not required, but are installed, the system or equipment and its installation shall meet the requirements of this part. However, the Commandant may, after reasonable investigations and tests, accept fire fighting equipment, which is of a type not contemplated by the regulations in this part, if the safety of the vessel is materially improved thereby.

Subpart 181.10—Fire Pumps

181.10-1 Power fire pump.

(a) *S and L.* A power-driven fire pump shall be installed on each mechanically propelled "S" vessel which is a ferry vessel or which is permitted to carry more than 49 passengers, and on each mechanically propelled "L" vessel.

(b) *S.* The power fire pump shall be capable of priming and of such size as to discharge an effective stream from a hose connected to the highest outlet.

(c) *L.* The minimum capacity of the power fire pump shall be 50 gallons per minute at a pressure of not less than 60 pounds per square inch at the pump outlet. The pump outlet shall be equipped with a pressure gage.

(d) *S.* The power fire pump may be driven off a propulsion engine or other

source of power and shall be connected to the fire main. This pump may also be connected to the bilge system so that it can serve as either a fire pump or a bilge pump as described in Subpart 182.25.

(e) *L.* The power fire pump may be driven off one of the propulsion engines in a twin engine installation. In a single engine propulsion installation, the pump shall be driven by a source of power independent of the propulsion engine. The pump may also be connected to the bilge system so that it can serve as either a fire pump or a bilge pump as described in Subpart 182.25 of this subchapter.

[CGFR 63-40, 28 FR 9740, Sept. 6, 1963]

§ 181.10-5 Hand fire pumps.

(a) All vessels shall be provided with a hand operated portable fire pump having a capacity of at least 5 gallons per minute. This fire pump shall be equipped with suction and discharge hose suitable for use in fire fighting.

(b) The hand portable fire pump may also serve as a bilge pump.

Subpart 181.15—Fire Main System

§ 181.15-1 Where required.

(a) All vessels required to be provided with a power-driven fire pump shall also be provided with a fire main system including fire main, hydrants, hose and nozzles.

§ 181.15-5 Fire main and hydrants.

(a) *S and L.* Fire hydrants, when required, shall be of sufficient number and so located that any part of the vessel may be reached with an effective stream of water from a single length of hose.

(b) *L.* There shall be a minimum of two (2) fire hydrants on all mechanically propelled "L" vessels.

(c) *S and L.* All piping, valves, and fittings shall be in accordance with good marine practice and suitable for the purpose intended.

[CGFR 63-40, 28 FR 9740, Sept. 6, 1963]

§ 181.15-10

§ 181.15-10 Fire hose.

(a) *S and L.* One length of fire hose shall be provided for each fire hydrant required.

(b) *S.* Fire hose may be commercial fire hose or equivalent of not over 1½-inch diameter or garden hose of not less than ¾-inch nominal inside diameter. Hose shall be in one piece not less than 25 feet and not more than 50 feet in length.

(c) *L.* Fire hose shall be 1½ inches in diameter and 50 feet in length.

(d) *S and L.* If 1½ inch diameter fire hose is used after January 1, 1980, each length of hose must:

(1) Be lined commercial fire hose that conforms to Underwriters' Laboratories, Inc., Standard 19 or Federal Specification ZZ-H-451E. A hose that bears the Label of Underwriters' Laboratories, Inc., as lined fire hose is accepted as conforming to the requirement; and

(2) Have a nozzle that has a ½ inch solid stream orifice or a combination nozzle approved by the Commandant in accordance with § 162.027-6 of this Chapter. The nozzle must be bronze or another material that has strength and corrosion resistance properties equal to those of bronze.

(e) *S.* If garden hose is used, it shall be of a good commercial grade constructed of an inner rubber tube, plies of braided cotton reinforcement and an outer rubber cover or of equivalent material, and shall be fitted with a commercial garden hose nozzle of good grade bronze or equivalent metal.

(f) *S and L.* All fittings on fire hose shall be of brass, copper, or other suitable corrosion-resistant metal.

(g) *S and L.* A length of fire hose shall be attached to each fire hydrant at all times.

[CGFR 63-40, 28 FR 9740, Sept. 6, 1963, as amended by CGD 74-60, 41 FR 43152, Sept. 30, 1976]

Subpart 181.20—Fixed Fire Extinguishing System

§ 181.20-1 Where required.

(a) Fixed carbon dioxide fire extinguishing systems shall be installed to protect the following spaces:

46 CFR Ch. I (10-1-90 Edition)

(1) The machinery and fuel tank spaces of all vessels using gasoline or other fuel having a flash point of 110° F. or lower, except that where machinery and fuel tank spaces are so open to the atmosphere as to make the use of a fixed system ineffective, no such system will be required.

(2) The paint and oil rooms and similar hazardous spaces on all vessels having such spaces.

(3) Cargo spaces which are inaccessible during a voyage and used for combustible cargo on all vessels having such spaces.

§ 181.20-5 Type system required.

(a) Except as otherwise provided in this section, all fixed fire extinguishing systems shall be of an approved carbon dioxide type and installed to the satisfaction of the Officer in Charge, Marine Inspection.

(b) On vessels where the amount of carbon dioxide gas required in a fixed system can be supplied by one portable extinguisher or by a semi-portable extinguisher, such extinguishers may be used subject to the following:

(1) Cylinders shall be installed in a fixed position outside the space protected.

(2) The applicator shall be installed in a fixed position so as to discharge into the space protected.

(3) Controls shall be installed in an accessible location outside the space protected.

§ 181.20-10 Amount of CO₂ gas required.

(a) The number of pounds of carbon dioxide required for each space protected shall be determined as follows:

(1) For cargo spaces, the number of pounds required shall be equal to the gross volume of the space in cubic feet divided by a factor of 30.

(2) For machinery and fuel tank spaces, paint lockers, oil rooms and similar hazardous spaces, the number of pounds required for each space shall be equal to the gross volume of the space divided by the appropriate factor noted in Table 181.20-10(a)(2).

TABLE 181.20-10(a)(2)

Volume of compartment, cubic feet		Factor
Over—	Not over—	
	500	15
	1,600	16
	4,500	18
		20

A separate supply of carbon dioxide shall not be provided for each protected space. The total available shall be at least sufficient for the space requiring the greatest.

181.20-15 Controls.

All controls and valves for the operation of the system shall be outside the spaces protected and shall not be located in such space as might be made inaccessible in the event of fire in any of the spaces protected.

Each branch line shall be fitted with an approved shutoff valve. Such valve shall be kept closed at all times except to operate the particular system.

The arrangements shall be such that the entire charge to any space can be introduced into the space by operation of one valve selecting the space, and one control for releasing at least the required amount of carbon dioxide. The controls shall be of approved type and shall be located adjacent to the shutoff valve controlling the space.

Complete but simple instructions for the operation of the systems must be posted in a conspicuous place at or near all pull boxes, stop valve controls in the CO₂ cylinder storage room. Systems in which the CO₂ cylinders are not within the protected space, the instructions must also include a schematic diagram of the system and instructions detailing alternate methods of discharging the system should manual release or stop valve control fail to operate. Each control shall be marked to branch lines must be marked to indicate the related space served.

R 60-54, 25 FR 9330, Sept. 29, 1960, as amended by CGD 74-100R, 40 FR 6209, Feb. 17, 1975]

§ 181.20-20 Piping.

(a) Branch lines to the various cargo spaces shall be not less than ½ inch standard pipe size.

(b) The size of branch lines to machinery and fuel tank spaces, paint lockers, oil rooms and similar hazardous spaces shall be as noted in Table 181.20-20(b).

TABLE 181.20-20(b)

Maximum quantity of carbon dioxide required, pounds	Minimum pipe size inches
100.....	¼ (Schedule 40).
225.....	¾ (Schedule 40).
300.....	1 (Schedule 80).
600.....	1½ (Schedule 80).

(c) All piping, valves, and fittings of ferrous materials shall be protected inside and outside against corrosion.

(d) All dead-end lines shall extend at least 2 inches beyond the last orifice and shall be closed with cap or plug.

(e) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(f) Drains and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture. Drains and dirt traps shall be located in accessible locations.

[CGFR 60-54, 25 FR 9330, Sept. 29, 1960, as amended by CGFR 62-17, 27 FR 9048, Sept. 11, 1962]

§ 181.20-25 Discharge outlets.

(a) Discharge outlets shall be of an approved type.

(b) The total area of all discharge outlets shall not exceed 85 percent nor be less than 35 percent of the nominal cylinder outlet area or the area of the supply pipe, whichever is smaller. The nominal cylinder outlet area in square inches shall be determined by multiplying the factor 0.0022 by the number of pounds of carbon dioxide required except that in no case shall this outlet area be less than 0.110 square inches.

§ 181.20-30 Cylinders.

(a) Cylinders shall be securely fastened and supported, and where necessary protected against injury.

§ 181.20-35

(b) Cylinders shall be mounted in an upright position or inclined not more than 30° from the vertical. However, cylinders which are fitted with flexible or bent siphon tubes may be inclined not more than 80° from the vertical.

(c) All cylinders used for storing carbon dioxide must be fabricated, tested, and marked in accordance with the requirements of §§ 147.60 and 147.65 of this chapter.

(d) Cylinders shall be so mounted as to be readily accessible and capable of easy removal for recharging and inspection, including weighing.

(e) Where subject to moisture, cylinders shall be so installed as to provide a space of at least 2 inches between the flooring and the bottom of the cylinders.

[CGFR 60-54, 25 FR 9330, Sept. 29, 1960, as amended by CGD 84-044, 53 FR 7752, Mar. 10, 1988]

§ 181.20-35 Closure of openings.

(a) Provision shall be made by means of plugs, covers, etc., to prevent the admission of air into the space protected.

46 CFR Ch. I (10-1-90 Edition)

Subpart 181.25—Manual Sprinkling System

§ 181.25-1 Where required.

(a) All vessels having a deck above a vehicular space shall be fitted with a manual sprinkling system in the vehicle space.

§ 181.25-5 Installation.

(a) Manual sprinkling systems required shall be subject to such requirements as determined by the Officer in Charge, Marine Inspection. These requirements are contained in applicable regulations in Part 76 of Subchapter B (Passenger Vessels) of this chapter.

Subpart 181.30—Portable Fire Extinguishers

§ 181.30-1 Required number, type and location.

(a) The minimum number of portable fire extinguishers required on each vessel shall be as determined by the Officer in Charge, Marine Inspection, in accordance with Table 181.30-1(a) and other provisions of this subpart.

TABLE 181.30-1(a)

Space protected	Total number extinguishers required	Type extinguishers permitted		
		Medium	Minimum size	Coast Guard classification
Wheelhouse or steering station	1	Foam..... Carbon dioxide..... Dry chemical.....	1½ gallons..... 4 pounds..... 2 pounds.....	B-I.
Propulsion machinery space (gasoline or other fuel having a flashpoint of 110° F. or lower) with fixed CO ₂ system.	1	Foam..... Carbon dioxide..... Dry chemical.....	1½ gallons..... 4 pounds..... 2 pounds.....	B-I.
Propulsion machinery space (gasoline or other fuel having a flashpoint of 110° F. or lower) without fixed CO ₂ system.	2	Foam..... Carbon dioxide..... Dry chemical.....	2½ gallons..... 15 pounds..... 10 pounds.....	B-II.
Propulsion machinery space (diesel oil or other fuel having a flashpoint over 110° F.).	2 (none required if fixed CO ₂ system is installed).	Foam..... Carbon dioxide..... Dry chemical.....	2½ gallons..... 15 pounds..... 10 pounds.....	B-II.
Vehicular spaces	1 for each 5 vehicles or fraction thereof.	Foam..... Carbon dioxide..... Dry chemical.....	2½ gallons..... 15 pounds..... 10 pounds.....	B-II.
Accommodations and galley	1	Foam..... Carbon dioxide..... Dry chemical.....	2½ gallons..... 15 pounds..... 10 pounds.....	B-II.

(b) The Officer in Charge, Marine Inspection, may permit the use of any approved fire extinguishers, including semiportable extinguishers, in lieu of those required by this section when in

his opinion such extinguishers will provide equivalent fire protection.

(c) Vaporizing liquid type fire extinguishers containing carbon tetrachloride or chlorobromomethane or other

ward, DOT

aporizing liquids are not ap-
and are not permitted on any

60-54, 25 FR 9330, Sept. 29, 1960, as
by CGFR 66-33, 31 FR 15299, Dec.
CGFR 68-65, 33 FR 19992, Dec. 28,

5 Approved extinguishers.

l portable fire extinguishers in-
on vessels shall be of an ap-
type.

60-54, 25 FR 9330, Sept. 29, 1960, as
d by CGFR 68-32, 33 FR 5727, Apr.

10 Installation and location.

portable fire extinguishers shall
ated so as to be convenient to
ce protected.

portable fire extinguishers shall
alled and located to the satis-
of the Officer in Charge,
Inspection.

Portable fire extinguishers,
are required on their name-
to be protected from freezing,
not be located where freezing
atures may be expected.

60-54, 25 FR 9330, Sept. 29, 1960, as
d by CGFR 62-17, 27 FR 9048, Sept.

12 Semiportable fire extinguish-

The frame or support of each se-
table fire extinguisher permitted
§ 181.30-10(b) in lieu of a porta-
e extinguisher required by Table
01(a) must be welded or other-
permanently attached to a bulk-
or deck.

If an approved semiportable fire
guisher has wheels and is not re-
d by Table 181.30-01(a), it must
urely stowed when not in use to
nt it from rolling out of control
heavy sea conditions.

77-039, 44 FR 34133, June 14, 1979]

Subpart 181.35—Fire Axe

35-1 Required number and loca-
on—L.

Each "L" vessel will be equipped
one (1) fire axe located in or ad-
t to the pilothouse.

Pt. 182

[CGFR 63-40, 28 FR 9740, Sept. 6, 1963]

PART 182—MACHINERY INSTALLATION

Subpart 182.01—Application and Intent

Sec.

- 182.01-1 Application.
- 182.01-5 Intent.

Subpart 182.05—Propulsion Machinery

- 182.05-1 General.
- 182.05-5 Installations.

Subpart 182.10—Auxiliary Machinery

- 182.10-1 General.
- 182.10-5 Installations.

Subpart 182.15—Machinery Using Gasoline as Fuel

- 182.15-1 Application.
- 182.15-5 General requirements.
- 182.15-7 Carburetors.
- 182.15-10 Gasoline engine cooling.
- 182.15-15 Gasoline engine exhaust cooling.
- 182.15-20 Gasoline engine exhaust pipe, in-
stallation.
- 182.15-25 Gasoline fuel tanks.
- 182.15-30 Filling and sounding pipes for
gasoline fuel tanks.
- 182.15-35 Vent pipes for gasoline fuel
tanks.
- 182.15-40 Gasoline fuel supply piping.
- 182.15-45 Ventilation of compartments
containing gasoline machinery or fuel
tanks.

Subpart 182.20—Machinery Using Diesel Fuel

- 182.20-1 Application.
- 182.20-5 General requirements.
- 182.20-10 Diesel engine cooling.
- 182.20-15 Diesel engine exhaust cooling.
- 182.20-20 Diesel engine exhaust pipe, in-
stallation.
- 182.20-22 Integral diesel fuel tanks.
- 182.20-25 Independent diesel fuel tanks.
- 182.20-30 Filling and sounding pipes for
diesel fuel tanks.
- 182.20-35 Vent pipes for diesel fuel tanks.
- 182.20-40 Diesel fuel supply piping.
- 182.20-45 Ventilation of compartments
containing diesel machinery.
- 182.20-50 Ventilation or venting of com-
partments containing diesel fuel tanks.

Subpart 182.25—Bilge and Ballast Systems

- 182.25-1 General.
- 182.25-5 Bilge piping system.
- 182.25-10 Bilge pumps.

§ 182.01-1

Sec.

182.25-15 Ballast systems.

Subpart 182.30—Steering Apparatus

182.30-1 Main steering apparatus.

182.30-5 Auxiliary steering apparatus.

Subpart 182.35—Separation of Machinery and Fuel Tank Spaces From Accommodation Spaces

182.35-1 Bulkheads.

Subpart 182.40—Nonmetallic Piping Materials

182.40-1 General.

182.40-5 Vital systems.

182.40-10 Non-vital systems.

AUTHORITY: 46 U.S.C. 3306; 49 CFR 1.46.

SOURCE: CGFR 60-54, 25 FR 9332, Sept. 29, 1960, unless otherwise noted.

Subpart 182.01—Application and Intent

§ 182.01-1 Application.

(a) The provisions of this part shall apply to the machinery installation on all vessels contracted for on or after June 1, 1958, except as otherwise provided for in this part. Machinery installations on all vessels contracted for prior to this date shall meet the requirements of this part insofar as is deemed reasonable and practicable by the Officer in Charge, Marine Inspection.

[CGFR 61-13, 26 FR 3927, May 5, 1961]

§ 182.01-5 Intent.

(a) The intent of this part is to insure that the main propulsion machinery installed on each vessel is suitable for the vessel and its operation and that the auxiliary machinery is suitable for the purpose intended. It is further intended that all machinery be installed and maintained in such a manner as to afford adequate protection against fire, explosion, machinery failure and personnel injury.

Subpart 182.05—Propulsion Machinery

§ 182.05-1 General.

(a) Propulsion machinery shall be suitable in type and design for propulsion requirements of the hull in which

46 CFR Ch. I (10-1-90 Edition)

it is installed and capable of operating at constant marine load under such requirements without exceeding its designed limitations.

§ 182.05-5 Installations.

(a) Except as otherwise provided in this section main propulsion machinery installations shall comply with the provisions of this part.

(b) Propulsion machinery of an unusual type for small passenger vessels shall be given separate consideration and shall be subject to such requirements as determined by the Officer in Charge, Marine Inspection. The requirements for machinery and boilers for steam and electrically propelled vessels are contained in applicable regulations in Subchapter F (Marine Engineering) and Subchapter J (Electrical Engineering) of this chapter. These unusual types of propulsion machinery include:

- (1) Machinery installations using steam.
- (2) Electrical machinery installations.
- (3) Gas turbine machinery installations.
- (4) Outboard motors.
- (5) Air screws.
- (6) Hydraulic jets.

Subpart 182.10—Auxiliary Machinery

§ 182.10-1 General.

(a) Auxiliary machinery shall be suitable in type and design for the purpose intended.

§ 182.10-5 Installations.

(a) Auxiliary machinery of the internal combustion piston type shall comply with the provisions of this part.

(b) Auxiliary machinery installation of the steam or gas turbine type will be given separate consideration and shall be subject to such requirements as determined by the Officer in Charge, Marine Inspection. These requirements are contained in applicable regulations in Subchapter F (Marine Engineering) of this chapter.

(c) Auxiliary boilers and heating boilers and their associated piping and fittings will be given separate consideration.

and will be subject to such retests as determined by the Officer in Charge, Marine Inspection. Requirements shall be as specified in applicable regulations in Subchapter F (Marine Engineering) of this chapter except that heating boilers shall be tested or examined every 5 years.

Except as otherwise provided in paragraph all unfired pressure vessels shall be Coast Guard approved and stamped to the satisfaction of the Officer in Charge, Marine Inspection. Requirements for design, construction and original testing of such unfired pressure vessels are in applicable regulations in Subchapter F (Marine Engineering) of this chapter. Information concerning the applicable regulations may be obtained from the Officer in Charge, Marine Inspection.

60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGFR 68-82, 33 FR 18909, Dec. 18, 1968.

Part 182.15—Machinery Using Gasoline as Fuel

182.15-1 Application.

This subpart shall apply to all internal combustion and auxiliary machinery of the internal combustion type which use gasoline or fuel having a flashpoint of 110° F (Pensky-Martens Closed Cup method, ASTM-D93) or lower.

68-82, 33 FR 18909, Dec. 18, 1968.

182.15-5 General requirements.

Starting motors, generators and spark producing device shall be located as high above the bilges as practicable.

Gages to indicate cooling water temperature and lubricating pressure shall be provided for all internal combustion engines and located so as to be in the view of the operator. When the engine is freshwater cooled and the cooling pipe is cooled by a separate cooling system, a suitable warnable or audible at the operating station shall be provided to indicate failure of water flow in the cooling system.

The use of liquefied inflammable gases such as propane, methane,

butane, etc., as fuel is prohibited on all vessels.

§ 182.15-7 Carburetors.

(a) All carburetors except the down-draft type shall be equipped with integral or externally fitted drip collectors of adequate capacity and of such arrangement as to permit ready removal of fuel leakage. Externally fitted drip collectors shall be covered with flame screens.

NOTE: It is recommended that drip collectors be drained by a device for automatic return of all drip to engine air intakes.

(b) All gasoline engines shall be equipped with an acceptable means of backfire flame control. Installations of backfire flame arresters or engine air and fuel induction systems bearing basic Approval No. 162.015 may be continued in use as long as they are serviceable and in good condition. New installations or replacements shall meet the applicable requirements of this section.

(c) The following are acceptable means of backfire flame control for gasoline engines:

(1) A backfire flame arrester constructed in accordance with the specification regulations contained in Subpart 162.041 of Subchapter Q (Specifications) of this chapter and it shall be specifically approved by the Commandant. The flame arrester shall be suitably secured to the air intake with a flamtight connection.

(2) An engine air and fuel induction system which provides adequate protection from propagation of backfire flame to the atmosphere equivalent to that provided by an approved backfire flame arrester. A gasoline engine utilizing an air and fuel induction system, and operated without an approved backfire flame arrester, shall have such installation tested and labelled in accordance with the specifications contained in Subpart 162.042 of Subchapter Q (Specifications) of this chapter and such system shall be specifically approved by the Commandant.

(3) Any attachment to the carburetor or location of the engine air induction system by means of which flames caused by engine backfire will be dis-

persed to the atmosphere outside the vessel in such a manner that the flames will not endanger the vessel, persons on board, or nearby vessels and structures. All attachments shall be of metallic construction with flame-tight connections and firmly secured to withstand vibration, shock, and engine backfire. Such installations do not require formal approval and labeling, but will be accepted by Coast Guard law enforcement officers on the basis of compliance with this subpart.

(4) Where manufacturers wish to produce vessels having an integrated engine-vessel design, a premarket approval of an engine air induction system is available. Such an installation shall be tested and labelled in accordance with the specifications contained in Subpart 162.043 of Subchapter Q (Specifications) of this chapter and such system shall be specifically approved by the Commandant.

[CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGFR 65-18, 30 FR 10243, Aug. 18, 1965]

§ 182.15-10 Gasoline engine cooling.

(a) Except as otherwise provided in this paragraph all engines shall be water cooled.

(1) Auxiliary engines with self-contained fuel systems may be air cooled when they are installed on open decks.

(b) The engine cooling water system shall be in accordance with the following provisions:

(1) The engine head, block and exhaust manifold shall be water jacketed and cooled by water from a pump which operates whenever the engine is operating.

(2) A closed fresh water system may be used to cool the engine. Air cooled radiators shall not be used for propulsion engine cooling systems.

(3) A suitable hull strainer shall be installed in the circulating water intake line.

§ 182.15-15 Gasoline engine exhaust cooling.

(a) Except as otherwise provided in this paragraph, all engine exhaust pipes shall be water cooled.

(1) Dry pipe vertical exhausts are permissible if suitably insulated.

(2) Horizontal dry exhaust pipes are permitted only if: They do not pass through living or berthing spaces; they terminate above the deepest load waterline and are so arranged as to prevent entry of cold water from rough or boarding seas, and they are constructed of corrosion resisting material at the hull penetration.

(3) Exhaust pipes on air cooled engines need not be water cooled but suitable insulation may be required.

(b) The exhaust pipe cooling water system shall be in accordance with the following provisions:

(1) Water for cooling the exhaust pipe shall be obtained from the engine cooling water system or a separate engine driven pump.

(2) Water for cooling the exhaust pipe, other than a vertical exhaust, shall be injected into the exhaust system as near to the engine manifold as practicable. The water shall pass through the entire length of the exhaust pipe.

(3) That part of the exhaust system between the point of cooling water injection and the engine manifold shall be water-jacketed or effectively insulated.

(4) Vertical exhaust piping must be water-jacketed or suitably insulated between the engine manifold and the spark arrester.

(5) When the exhaust cooling system is separate from the engine cooling system, a suitable warning device shall be provided to indicate any failure of water flow in the exhaust cooling system. Such warning shall be visible or audible at the engine operating station.

(6) A suitable hull strainer shall be installed in the circulating water intake line for the exhaust cooling system.

(c) Engine exhaust cooling systems built in accordance with the requirements of American Boat and Yacht Council, Inc., Standard P-1, "Safe Installation of Exhaust Systems for Propulsion and Auxiliary Machinery" will be considered as meeting the requirements of this section. (See § 175.27-5 of this subchapter.)

CFR 68-82, 33 FR 18909, Dec. 18, 1968, as amended by CGFR 72-59R, 37 FR 6191, Dec. 25, 1972]

182.15-20 Gasoline engine exhaust pipe, installation.

- a) Exhaust piping shall be led to a point of escape with a minimum number of bends or elbows. It shall be airtight throughout its length and shall be properly supported by non-combustible hangers or blocks.
- b) The exhaust piping shall be so arranged as to prevent backflow of gas from reaching engine exhaust ports under normal conditions.
- c) Where flexibility is necessary a section of flexible metallic hose may be used. Non-metallic hose may be used provided it is especially adapted to resist the action of oil, acid and heat, and has a wall thickness sufficient to prevent collapsing or parting.
- d) Where exhaust piping passes through watertight bulkheads the watertight integrity of the bulkhead shall be maintained. Non-combustible packing shall be used in bulkhead penetration glands. Water cooled exhaust pipes may be welded to steel bulkheads in way of penetrations if suitable arrangements are provided to relieve the stresses resulting from the expansion of the exhaust piping.
- e) Where exhaust piping passes through non-watertight combustible bulkheads or partitions non-combustible packing shall be used in bulkhead penetration glands or a minimum clearance of 2 inches shall be provided between the exhaust pipe and the bulkhead or partition.
- f) Vertical exhaust systems shall be provided with spark arresters. Spark arresters shall be supported by suitable steel hangers and shall be lagged with fire resistant material. A clear-

ance of at least 9 inches shall be maintained between the spark arrester and any woodwork.

(g) Protective gratings shall be provided at such locations where persons or gear might come in contact with the exhaust pipe.

(h) Arrangements shall be made to provide access to the exhaust pipe throughout its length.

(i) All exhaust installations with pressures in excess of 15 pounds per square inch gage or employing runs passing through living or working spaces shall meet the material requirements of Part 56 of Subchapter F (Marine Engineering) of this chapter.

(j) Engine exhaust installations built in accordance with the requirements of American Boat and Yacht Council, Inc., Standard P-1, "Safe Installations of Exhaust Systems for Propulsion and Auxiliary Machinery" will be considered as meeting the requirements of this section. (See § 175.27-5 of this subchapter.)

[CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGFR 68-82, 33 FR 18909, Dec. 18, 1968]

§ 182.15-25 Gasoline fuel tanks.

(a) *Materials and construction.* (1) Fuel tanks shall be independent of the hull. The material used and the minimum thickness allowed shall be as indicated in Table 182.15-25(a)(1), except that consideration will be given to other materials which provide equivalent safety as indicated in paragraph (a)(8) of this section. Fuel tanks having a capacity of more than 150 gallons shall be designed to withstand the maximum head to which they may be subjected in service but in no case shall the thickness be less than that specified in Table 182.15-25(a)(1).

TABLE 182.15-25(a)(1)

Material	ASTM Specification (latest edition)	Thickness in inches and gage number ¹ vs. tank capacities for—		
		1 to 80 gallon tanks	More than 80 and not more than 150 gallon tanks	Over 150 gallon tanks
Aluminum-copper	B127, hot rolled sheet or plate	0.037 (USSG 20) ²	0.050 (USSG 18)	0.107 (USSG 12)
Copper-nickel	B122, alloy No. 5	0.045 (AWG 17)	0.057 (AWG 15)	0.128 (AWG 8)
Copper	B152, type ETP	0.057 (AWG 15)	0.081 (AWG 12)	0.182 (AWG 5)
Copper-silicon	B97, alloys A, B, and C	0.051 (AWG 16)	0.064 (AWG 14)	0.144 (AWG 7)
Steel or iron ³		0.0747 (MSG 14)	0.1046 (MSG 12)	0.1793 (MSG 7)

TABLE 182.15-25(a)(1)—Continued

Material	ASTM Specification (latest edition)	Thickness in inches and gage number ¹ vs. tank capacities for—		
		1 to 80 gallon tanks	More than 80 and not more than 150 gallon tanks	Over 150 gallon tanks
Aluminum ⁴	B209, Alloy 5086 ⁵	0.250 (USSG 3)	0.250 (USSG 3)	0.250 (USSG 3)

¹ The gage numbers used in this table may be found in many standard engineering reference books. The letters "USSG" stand for "U.S. Standard Gage," which was established by the act of March 3, 1892 (15 U.S.C. 206), for sheet and plate iron and steel. The letters "AWG" stand for "American Wire Gage" (or Brown and Sharpe Gage) for ferrous sheet thicknesses. The letters "MSG" stand for "Manufacturers' Standard Gage" for sheet steel thicknesses.

² Nickel-copper not less than 0.031 inch (USSG 22) may be used for tanks up to 30-gallon capacity.

³ Fuel tanks constructed of iron or steel, which is less than 3/16-inch thick, shall be galvanized inside and outside by the hot dip process.

⁴ Anodic to most common metals. Avoid dissimilar metal contact with tank body.

⁵ And other alloys acceptable to the Commandant.

(2) Tanks with flanged-up top edges, that may trap and hold moisture, shall not be used.

(3) Openings for fill, vent and fuel pipes, and openings for fuel level gages where used, shall be on topmost surface of tanks. Tanks shall have no openings in bottoms, sides, or ends, except that an opening fitted with threaded plug or cap may be used for tank cleaning purposes.

(4) All tank joints shall be welded or brazed.

(5) Nozzles, flanges, or other fittings for pipe connections shall be welded or brazed to the tank. The tank openings in way of pipe connections shall be properly reinforced where necessary. Where fuel level gages are used the flange to which gage fittings are attached shall be welded or brazed to the tank. No tubular gage glasses or trycocks shall be fitted to the tanks.

(6) All tanks exceeding 30 inches in any horizontal dimension shall be fitted with vertical baffle plates where necessary for strength or for control of excessive surge. In general, baffle plates installed at intervals not exceeding 30 inches will be considered as meeting this requirement.

(7) Baffle plates, where required, shall be of the same material and not less than the minimum thickness required in the tank walls and shall be connected to the tank walls by welding or brazing. Limber holes at the bottom and air holes at the top of all baffles shall be provided.

(8) Materials other than those listed in Table 182.15-25(a)(1) may be used for gasoline fuel tank construction only if the tank as constructed meets the testing requirements of Yacht

Safety Bureau STD E-3, paragraph E3-3. (See § 175.27-20 of this subchapter.) Testing may be accomplished by any acceptable laboratory such as the Yacht Safety Bureau, or may be done by the fabricator if witnessed by a marine inspector.

(b) *Location and installation.* (1) Fuel tanks shall be located in, or as close as practicable to engine compartments.

(2) Fuel tanks shall be so installed as to permit examination, testing, or removal for cleaning with minimum disturbance to the hull structure.

(3) Fuel tanks shall be adequately supported and braced to prevent movement. The supports and braces shall be insulated from contact with the tank surfaces with a non-abrasive and non-absorbent material.

(4) All fuel tanks shall be electrically bonded to the common ground.

(5) Cylindrical tanks with longitudinal seams shall be arranged horizontally where practicable so that such seams are located as near the top as possible.

(c) *Tests.* (1) Prior to installation, tanks vented to the atmosphere shall be tested to, and must withstand, a pressure of 5 pounds per square inch or 1½ times the maximum head to which they may be subjected in service, whichever is greater. A standpipe of 11½ feet in height attached to the tank may be filled with water to accomplish the 5 pounds per square inch test. Permanent deformation of the tank will not be cause for rejection unless accompanied by leakage.

(2) After installation of the fuel tank on a vessel the complete installation

§ 182.15-40

ll be tested in the presence of a
ine inspector to a head not less
n that to which the tank may be
ected in service. Fuel may be used
esting medium.

) All tanks not vented to the at-
sphere shall be constructed and
ed in accordance with § 182.10-

FR 60-54, 25 FR 9332, Sept. 29, 1960, as
ended by CGFR 66-33, 31 FR 15299, Dec.
1966; CGFR 68-82, 33 FR 18910, Dec. 18,
1968; CGFR 72-59R, 37 FR 6191, Mar. 25,
1972

§ 182.15-30 Filling and sounding pipes for
gasoline fuel tanks.

a) Fill pipes shall be not less than
inches nominal pipe size.

b) Filling and sounding pipes shall
so arranged that overflow of liquid
vapor cannot escape to the inside of
e vessel. Sounding pipes may be
itted where sounding can be accom-
shed through the fill pipe or where
marine type fuel gages are installed.
ere sounding pipes are used, their
enings shall be at least as high as
e opening of the fill pipe and they
all be kept closed at all times except
ring sounding.

c) Fill and sounding pipes shall run
directly as possible, preferably in a
right line, from the deck connec-
on to the top of the tank. Such pipes
all terminate on the weather deck
ear of any coamings and shall be
ted with shutoff valves, watertight
ck plates or screw caps suitably
arked for identification. Fill and
unding pipes shall extend to within
e-half of their diameter from the
ottom of the tank.

(d) Where a flexible fill pipe section
necessary, suitable flexible tubing or
ose having high resistance to salt
water, petroleum oils, heat and vibra-
on, may be used. Such hose shall
verlap metallic pipe ends at least 1½
imes the pipe diameter and shall be
cured at each end by two clamps of
orrosion resistant metal. The flexible
ection shall be accessible and as near
e upper end of the filling pipe as
racticable. When the flexible section
a nonconductor of electricity, the
etallic sections of the filling pipe
eparated thereby shall be joined by a

conductor for protection against static
spark when filling.

[CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as
amended by CGD 76-154, 42 FR 48880, Sept.
26, 1977]

§ 182.15-35 Vent pipes for gasoline fuel
tanks.

(a) Each tank shall be fitted with a
vent pipe which shall be connected to
the tank at its highest point under
normal operating conditions.

(b) The net cross-sectional area of
the vent pipe shall be not less than
that of ¾-inch O.D. tubing (0.035 inch
wall thickness—20 gage), except that,
where provision is made to fill the
tanks under pressure, the net-cross-
sectional area of the vent pipe shall be
not less than that of the fill pipe.

(c) The discharge ends of vent pipes
shall terminate on the hull exterior as
high above the waterline as practica-
ble and remote from any hull open-
ings, or, they shall terminate in U-
bends as high above the weather deck
as practicable and as far from any
openings into living quarters or other
below deck spaces as practicable. Vent
pipes terminating on the hull exterior
shall be so installed or equipped as to
prevent the accidental contamination
of the fuel by water under normal op-
erating conditions.

(d) The discharge ends of vent pipes
shall be fitted with removable flame
screens or flame arresters. The flame
screens shall consist of a single screen
of corrosion resistant wire of at least
30×30 mesh. The flame screens or
flame arresters shall be of such size
and design as to prevent reduction in
the net cross-sectional area of the vent
pipe and permit cleaning or renewal of
the flame screens or arrester elements.

§ 182.15-40 Gasoline fuel supply piping.

(a) *Materials and workmanship.* (1)
Fuel lines shall be annealed tubing of
copper, nickel-cop_{er}, or copper-nickel
having a minimum wall thickness of
0.035 inch.

(2) Where flexibility is necessary or
desired, a reasonable length of flexible
hose may be used provided it is fitted
with suitable connection fittings and
has high resistance to saltwater, petro-
leum oils and vibration.

(3) Flexible hose shall be fabricated with an inner tube and a cover of synthetic rubber or other suitable material reinforced with wire braid. The hose cover shall be adjudged self-extinguishing per ASTM D1692, and the hose assembly shall be capable of withstanding free burning gasoline for 2½ minutes (test details available from Coast Guard (G-MTH). Details of other fire tests designed to demonstrate this capability shall be submitted to Coast Guard (G-MTH) for review.

(4) Tubing connections and fittings shall be of nonferrous drawn or forged metal of the flared type except that the flareless fittings of the nonbite type may be used when the tubing system is of nickel-copper or copper-nickel. When making tube connections, the tubing shall be cut square and flared by suitable tools. Tube ends shall be annealed before flaring.

(5) Valves for fuel lines shall be of a suitable nonferrous type. Cocks are prohibited except for the solid bottom type with tapered plugs and union bonnets.

(b) *Installation.* (1) Fuel lines shall be run at the level of the tank top to a point as close to the engine connection as practicable.

(2) Fuel lines shall be accessible, protected from mechanical injury, and effectively secured against excessive movement and vibration by the use of soft nonferrous metal straps with no sharp edges. Where passing through bulkheads, fuel lines shall be protected by close fitting ferrules or stuffing boxes.

(3) Shutoff valves, installed so as to close against the fuel flow, shall be fitted in the fuel supply lines, one at the tank connection and one at the engine end of the fuel line to stop fuel flow when servicing accessories. The shutoff valve at the tank shall be operable from outside the tank compartment preferably from an accessible position on the weather deck.

(4) A loop of copper tubing or a short length of flexible hose shall be installed in the fuel supply line at or near the engines. Such flexible hose shall be provided with suitable connection fittings and shall have a high resistance to salt water, petroleum oils, heat and vibration.

(5) A suitable metal marine type strainer shall be fitted in the fuel supply line in the engine compartment. Strainers shall be of the type opening on top for cleaning screens. A drip pan fitted with flame screen shall be installed under the strainer.

(6) All accessories installed in the fuel line shall be independently supported.

(7) Outlets in fuel lines for drawing fuel below deck for any purpose are prohibited.

[CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGFR 68-82, 33 FR 18910, Dec. 18, 1968; CGD 72-206R, 38 FR 17230, June 29, 1973; CGD 82-063b, 48 FR 4783, Feb. 3, 1983]

§ 182.15-45 Ventilation of compartments containing gasoline machinery or fuel tanks.

(a) Spaces containing gasoline machinery or fuel tanks shall have natural supply and mechanical exhaust ventilation as required by this section, except that, where engines and fuel tanks are not in closed compartments, at least one ventilation duct shall be installed in the fore part of the vessel and one in the after part of the vessel, both ducts having cowls or scoops are required by paragraph (h) of this section.

(b) The requirements for the mechanical exhaust system shall be such as to assure the air changes as noted in table 182.15-45(b) depending upon the size of the space.

TABLE 182.15-45(b)

Size of space, cubic feet		Minutes per air change
Over—	Not over—	
	500	2
500.....	1,000	3
1,000.....	1,500	4
1,500.....		5

(c) Exhaust blower motors shall be outside of the ducts, and if mounted in any compartment required to be ventilated by this section, shall be located as high above the bilge as practicable. Blower blades shall be nonsparking with reference to their housings.

§ 182.20-10

Exhaust blower switches shall be outside of any space required ventilated by this section, and be of the type interlocked with starting switch and the ignition so that the blowers are started when the engine starter motor circuit engine ignition is energized. A warning sign at the switch shall indicate that the blowers shall be operated before starting the engines for a short time to insure at least one complete change of air in the compartment.

The area of the ducts shall be sized to limit the air velocity to a maximum of 2,000 feet per minute. Ducts may be of any shape, provided in no case shall one cross section area exceed twice the other.

At least two inlet ducts shall be located at one end of the compartment. They shall extend to the lowest part of the compartment or bilge on each side. Similar exhaust ducts shall be connected to the mechanical exhaust from the lowest part of the compartment or bilge on each side of the compartment at the end opposite that at which the inlet ducts are located. These ducts shall be so installed that ordinary collection of water in the bilge will not trap the ducts.

All ducts shall be of rigid permanent construction of fire proof material, reasonably gastight from end to end. The ducts shall lead as direct as possible and be properly fastened and secured.

All supply ducts shall be provided with cowls or scoops having a free area not less than twice the required area. When the cowls or scoops are screened, the mouth area shall be sized to compensate for the area screened. Dampers shall not be installed in the supply ducts. Cowls or scoops shall be kept open at all times when the stress of weather is such as to endanger the vessel if the openings are not temporarily closed. Intake and exhaust openings shall not be located where the natural flow of air is unduly obstructed, or adjacent to sources of vapor ignition, nor shall they be so located that exhaust may be taken into the supply ducts. Provision shall be made for closing

all cowls or scoops when the fixed carbon dioxide system is operated.

[CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGFR 68-65, 33 FR 19992, Dec. 28, 1968]

Subpart 182.20—Machinery Using Diesel Fuel

§ 182.20-1 Application.

(a) This subpart shall apply to all propulsion and auxiliary machinery installations of the internal combustion piston type which use Diesel fuel or other fuel having a flashpoint (Pensky-Martens Closed Cup Method—ASTM-D93) of over 110° F.

[CGFR 68-82, 33 FR 18910, Dec. 18, 1968]

§ 182.20-5 General requirements.

(a) Generators, starting motors and other spark producing devices shall be mounted as high above the bilges as practicable.

(b) Gages to indicate engine cooling water discharge temperature and lubricating oil pressure shall be provided for all propulsion engines and located so as to be in view of the operator.

§ 182.20-10 Diesel engine cooling.

(a) Except as otherwise provided in this paragraph all engines shall be water cooled.

(1) Auxiliary engines with self-contained fuel systems may be air cooled when they are installed on open decks.

(2) Air cooled propulsion and auxiliary engines may be installed under deck when adequate compartment ventilation is provided and other necessary safeguards are taken so as not to endanger the vessel. (See § 182.20-45(b) for ventilation requirements.)

(b) The engine cooling water system shall be in accordance with the following provisions:

(1) The engine head, block and exhaust manifold shall be water jacketed and cooled by water from a pump which operates whenever the engine is operating.

(2) A closed fresh water system may be used to cool the engine. Air cooled radiators shall not be used for propulsion engine cooling systems.

§ 182.20-15

(3) A suitable hull strainer shall be installed in the circulating water intake line.

§ 182.20-15 Diesel engine exhaust cooling.

(a) Installation shall be in accordance with § 182.15-15.

[CGFR 68-82, 33 FR 18910, Dec. 18, 1968]

§ 182.20-20 Diesel engine exhaust pipe, installation.

(a) Installation of diesel engine exhaust pipe shall be in accordance with § 182.15-20.

[CGFR 68-82, 33 FR 18910, Dec. 18, 1968]

§ 182.20-22 Integral diesel fuel tanks.

(a) A diesel fuel tank may not be built integral with the hull of a vessel unless the hull is made of—

- (1) Steel;
- (2) Aluminum; or
- (3) Fiberglass reinforced plastic that is—

- (i) Not sandwich construction;
- (ii) Sandwich construction with core material of closed-cell, polyvinyl chloride foam; or
- (iii) Sandwich construction only where the hull is not integral with the tank.

(a-1) Each vessel contracted for before January 16, 1978 that has a fiberglass reinforced plastic hull made of sandwich construction in whole or in part may postpone compliance with

46 CFR Ch. I (10-1-90 Edition)

paragraph (a) of this section until its next inspection for certification or reinspection, whichever occurs first.

(b) Integral fuel tanks shall be constructed to the satisfaction of the Officer in Charge, Marine Inspection. The standards of a recognized classification society may be considered in determining the structural adequacy of an integral fuel tank.

(c) Integral fuel tanks, when new shall be subjected to and shall withstand a hydrostatic test pressure of 5 pounds per square inch, or to the maximum head to which they may be subjected in service whichever is greater.

[CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGD 75-184, 42 FR 63175, Dec. 15, 1977]

§ 182.20-25 Independent diesel fuel tanks.

(a) *Material and construction.* (1) The materials used and the minimum thickness allowed in the construction of independent fuel tanks shall be as indicated in Table 182.20-25(a)(1), except that consideration will be given to other materials which provide equivalent safety as indicated in paragraph (a)(9) of this section. Fuel tanks having a capacity of more than 150 gallons shall be designed to withstand the maximum head to which they may be subjected in service but in no case should the thickness be less than that specified in Table 182.20-25(a)(1).

TABLE 182.20-25(a)(1)

Material	ASTM specification (latest edition)	Thickness in inches and gage number ¹ vs. tank capacities for—		
		1 to 60 gallon tanks	More than 60 and not more than 150 gallon tanks	Over 150 gallon tanks
Nickel-copper	B127, hot rolled sheet or plate	0.037 (USSG 20) ²	0.050 (USSG 18)	0.107 (USSG 12)
Steel or iron		0.0747 (MSG 14)	0.1046 (MSG 12)	0.1793 (MSG 7)
Aluminum ³	B209, Alloy 5086 ⁴	0.250 (USSG 3)	0.250 (USSG 3)	0.250 (USSG 3)

¹ The gage numbers used in this table may be found in many standard engineering reference books. The letters "USSG" stand for "U.S. Standard Gage," which was established by the act of March 3, 1892 (15 U.S.C. 206), for sheet and plate iron and steel. The letters "MSG" stand for "Manufacturers' Standard Gage" for sheet steel thicknesses.

² Nickel-copper not less than 0.031 inch (USSG 22) may be used for tanks up to 30-gallon capacity.

³ Anodic to most common metals. Avoid dissimilar metal contact with tank body.

⁴ And other alloys acceptable to the Commandant.

(2) Tanks with flanged-up top edges, that may trap and hold moisture, shall not be used.

(3) Openings for fill and vent pipes and openings for fuel level gages,

where used, shall be on the topmost surface of tanks. Tanks shall have no openings in bottoms, sides or ends except as follows:

The opening for the fuel supply is not restricted to the top of tank.

(1) An opening fitted with threaded cap or plug may be used on the bottom of the tank for tank cleaning purposes.

(2) All tank joints shall be welded.

(3) Nozzles, flanges or other fittings on pipe connections shall be welded or brazed to the tank. The tank opening on pipe connections shall be properly reinforced where necessary. Where liquid level indicating gages are installed, they shall be of heat resistant materials, adequately protected from mechanical damage and provided the tank connections with devices which will automatically close in the event of rupture of the gage or gage connections.

(4) All tanks exceeding 30 inches in any horizontal dimension shall be fitted with vertical baffle plates where necessary for strength or for control of excessive surge. In general, baffle plates installed at intervals not exceeding 30 inches will be considered as meeting this requirement.

(5) Baffle plates, where required, shall be of the same material and not less than the minimum thickness required in the tank walls and shall be connected to the tank walls by welding or brazing. Limber holes at the bottom and air holes at the top of all baffles shall be provided.

(6) Iron or steel tanks shall not be galvanized on the interior. Galvanizing, paint or other suitable coating shall be used to protect the outside of iron and steel tanks.

(7) Materials other than those specifically listed in Table 182.20-25(a)(1) may be used only if the tank as constructed meets the testing requirements of Yacht Safety Bureau STD E-paragraph E3-3. (See § 175.27-20 of this subchapter.) Testing may be accomplished by any acceptable laboratory such as the Yacht Safety Bureau. Testing may be done by the fabricator if witnessed by a marine inspector.

(b) *Location and installation.* (1) Fuel tanks shall be located in, or as near as practicable, to engine compartments.

(2) Fuel tanks shall be so installed as to permit examination, testing, or re-

moval for cleaning with minimum disturbance to the hull structure.

(3) Fuel tanks shall be adequately supported and braced to prevent movement. The supports and braces shall be insulated from contact with the tank surfaces with a non-abrasive and non-absorbent material.

(4) All fuel tanks shall be electrically bonded to the common ground.

(5) When cylindrical tanks are installed, longitudinal seams shall be located as near the top of the tanks as possible.

(c) *Tests.* (1) Prior to installation, tanks vented to the atmosphere shall be tested to and must withstand a pressure of 5 pounds per square inch or $1\frac{1}{2}$ times the maximum head to which they may be subjected in service, whichever is greater. A standpipe of $11\frac{1}{2}$ feet in height attached to the tank may be filled with water to accomplish the 5 pounds per square inch test. Permanent deformation of the tank will not be cause for rejection unless accompanied by leakage.

(2) After installation of the fuel tank on a vessel, the complete installation shall be tested in the presence of a marine inspector to a head not less than that to which the tank may be subjected in service. Fuel may be used as a testing medium.

(3) All tanks not vented to the atmosphere shall be constructed and tested in accordance with § 182.10-5(d).

[CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGFR 64-19, 29 FR 7362, June 5, 1964; CGFR 66-33, 31 FR 15299, Dec. 6, 1966; CGFR 68-82, 33 FR 18910, Dec. 18, 1968; CGFR 72-59R, 37 FR 6192, Mar. 25, 1972]

§ 182.20-30 Filling and sounding pipes for diesel fuel tanks.

(a) Fill pipes shall be not less than $1\frac{1}{2}$ inches nominal pipe size.

(b) Filling and sounding pipes shall be so arranged that overflow of liquid or vapor cannot escape to the inside of the vessel. Sounding pipes may be omitted where sounding can be accomplished through the fill pipe or where marine type fuel gages are installed. Where sounding pipes are used, their openings shall be at least as high as the opening of the fill pipe and they

shall be kept closed at all times except during sounding.

(c) Fill and sounding pipes shall run as directly as possible, preferably in a straight line, from the deck connection to the top of the tank. Such pipes shall terminate on the weather deck clear of any coamings and shall be fitted with shutoff valves, watertight deck plates or screw caps suitably marked for identification. Fill and sounding pipes may terminate at the top of the tank.

(d) Where a flexible fill pipe section is necessary, suitable flexible tubing or hose having high resistance to salt water, petroleum oils, heat and vibration, may be used. Such hose shall overlap metallic pipe ends at least 1½ times the pipe diameter and shall be secured at each end by two clamps of corrosion resistant metal. The flexible section shall be accessible and as near the upper end of the filling pipe as practicable. When the flexible section is a nonconductor of electricity, the metallic sections of the filling pipe separated thereby shall be joined by a conductor for protection against static spark when filling.

[CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGD 76-154, 42 FR 48880, Sept. 26, 1977]

§ 182.20-35 Vent pipes for diesel fuel tanks.

(a) Each fuel tank shall be fitted with a vent pipe which shall be connected to the tank at its highest point under normal operating conditions.

(b) The minimum net cross-sectional area of the vent pipe shall be as follows:

(1) Not less than the cross-sectional area of ¾-inch O.D. tubing (0.035-inch wall thickness—20 gage), if the fill pipe terminates at the top of the tank.

(2) Not less than the cross-sectional area of ¾-inch O.D. tubing (0.035-inch wall thickness—20 gage), if the fill pipe extends into the tank.

(3) Not less than the cross-sectional area of the fill pipe if provision is made to fill the tank under pressure.

(c) The discharge ends of vent pipes shall terminate on the hull exterior as high above the waterline as practicable and remote from any hull openings, or, they shall terminate in U-

bends as high above the weather deck as practicable and as far from any openings into living quarters or other below deck spaces as practicable. Vent pipes terminating on the hull exterior shall be so installed or equipped as to prevent the accidental contamination of the fuel by water under normal operating conditions.

(d) The discharge ends of vent pipes shall be fitted with removable flame screens or flame arresters. The flame screens shall consist of a single screen of corrosion resistant wire of at least 30 × 30 mesh. The flame screens or flame arresters shall be of such size and design as to prevent reduction in the net cross-sectional area of the vent pipe and permit cleaning or renewal of the flame screens or arrester elements.

§ 182.20-40 Diesel fuel supply piping.

(a) *Material and workmanship.* (1) Fuel supply piping shall be of copper, nickel copper, or copper nickel having a minimum wall thickness of 0.035 inch except that piping of other materials such as seamless steel pipe or tubing which provides equivalent safety may be used.

(2) Flexible hose may be used provided it is fitted with suitable connection fittings and has high resistance to saltwater, petroleum oils and vibration.

(i) Flexible hose runs shall be visible, easily accessible and shall not penetrate watertight bulkheads.

(ii) Flexible hose shall be fabricated with an inner tube and a cover of synthetic rubber or other suitable material reinforced with wire braid. The hose cover shall be adjudged self-extinguishing per ASTM D1692, and the hose assembly be capable of withstanding free burning gasoline for 2½ minutes (test details available from Coast Guard (G-MTH). Details of other fire tests designed to demonstrate this capability shall be submitted to Coast Guard (G-MTH) for review.

(3) Tubing connections and fittings shall be drawn or forged metal of the flared type except that flareless fittings of the nonbite type may be used when the tubing is steel, nickel-copper, or copper nickel. When making flared

§ 182.20-45

connections the tubing shall be square and flared by suitable tools. The ends shall be annealed before fitting.

(c) Cocks are prohibited for use in fuel lines except those of the solid brass type with tapered plugs and brass bonnets.

(d) Installation. (1) The fuel supply line may be connected to the fuel tank at or near the bottom of the tank.

(2) Fuel lines shall be accessible, protected from mechanical injury, and effectively secured against excessive movement and vibration by the use of non-ferrous metal straps with no sharp edges. Where passing through bulkheads, fuel lines shall be protected by close fitting ferrules or stuffing boxes.

(3) Shutoff valves, installed so as to be against the fuel flow, shall be located in the fuel supply lines, one at the tank connection and one at the engine end of the fuel line to stop fuel flow when servicing accessories. The shutoff valve at the tank shall be operable from outside the tank compartment, preferably from an accessible position on the weather deck.

(4) A loop of tubing or a short length of flexible hose shall be installed in the fuel supply line at or near the engines. Such flexible hose shall be provided with suitable connection fittings and shall have a high resistance to salt water, petroleum oils, heat and vibration.

(5) A suitable marine type strainer shall be fitted in the fuel supply line in the engine compartment. No special fuel strainers other than those recommended or furnished by the engine manufacturer will be required. Drip pans fitted with flame screens may be required under fuel strainers other than those mounted on the engine.

(6) All accessories installed in the fuel line shall be independently supported.

(7) Valves for removing water or impurities from fuel in watertraps or fuel strainers will be permitted. Such valves shall be provided with caps or plugs to prevent fuel leakage.

CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGFR 68-82, 33 FR 18911, Dec. 8, 1968; CGD 72-206R, 38 FR 17230, June

29, 1973; CGD 82-063b, 48 FR 4783, Feb. 3, 1983]

§ 182.20-45 Ventilation of compartments containing diesel machinery.

(a) Spaces containing machinery shall be fitted with adequate drip-proof ventilators, trunks, louvers, etc., to provide sufficient air for proper operation of main engines and auxiliary engines.

(b) Air-cooled propulsion and auxiliary engines installed below deck as permitted by § 182.20-10 shall be fitted with air intake ducts or piping from the weather deck. The ducts or piping shall be so arranged and supported to be capable of safely sustaining stresses induced by weight and engine vibration and to minimize transfer of vibration to the supporting structure. Prior to installation of ventilation for such engines, plans or sketches showing machinery arrangement including air intakes, exhaust stack, method of attachment of ventilation ducts to the engine, location of spark arresting mufflers and capacity of ventilation blowers shall be submitted to the Commandant for approval.

(c) Spaces containing machinery shall be fitted with at least two ducts to furnish natural or mechanical supply and exhaust ventilation. One duct shall extend to a point near the bottom of the compartment, so installed that the ordinary collection of water in the bilge will not trap the duct. Where forced ventilation is installed, the duct extending near the bottom shall be the exhaust. The total inlet area and the total outlet area of ventilation ducts shall each be not less than one square inch for each foot of beam of the vessel. These minimum areas shall be increased as necessary when such ducts are considered as part of the air supply to the engines.

(d) All ducts shall be of rigid permanent construction of fire proof material and reasonably gastight from end to end. The ducts shall lead as direct as possible and be properly fastened and supported.

(e) All supply ducts for ventilation purposes shall be provided with cowls or scoops having a free area not less than twice the required duct area. When the cowls or scoops are

§ 182.20-50

screened, the mouth area shall be increased to compensate for the area of the screen wire. Dampers shall not be fitted in the supply ducts. Cowls or scoops shall be kept open at all times except when the stress of weather is such as to endanger the vessel if the openings are not temporarily closed. Supply and exhaust openings shall not be located where the natural flow of air is unduly obstructed, or adjacent to possible sources of vapor ignition, nor shall they be so located that exhaust air may be taken into the supply vents.

[CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGFR 68-32, 33 FR 5727, Apr. 12, 1968]

§ 182.20-50 Ventilation or venting of compartments containing diesel fuel tanks.

(a) Except as otherwise provided in this paragraph enclosed compartments or spaces containing diesel fuel tanks and no machinery shall be provided with a gooseneck vent of not less than 2½ inches in diameter. Vent openings shall not be located adjacent to possible sources of vapor ignition.

(1) In small compartments or spaces a vent of not less than 1½ inches in diameter may be provided.

(2) Compartments which are adequately ventilated need not be provided with such gooseneck vents.

[CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGFR 68-32, 33 FR 5727, Apr. 12, 1968]

Subpart 182.25—Bilge and Ballast Systems

§ 182.25-1 General.

(a) All vessels shall be provided with a satisfactory arrangement for draining any watertight compartment other than small buoyancy compartments, under all practical conditions. Sluice valves are not permitted in watertight bulkheads.

46 CFR Ch. I (10-1-90 Edition)

§ 182.25-5 Bilge piping system.

(a) All vessels of 26 feet in length and over shall be provided with individual bilge lines and bilge suction for each watertight compartment except as follows:

(1) The space forward of the collision bulkhead need not be fitted with a bilge suction line when the arrangement of the vessel is such that ordinary leakage may be removed from this compartment by the use of a hand portable bilge pump or other equipment and such equipment is provided.

(b) The bilge pipe in "S" vessels shall be not less than one inch nominal pipe size, and in "L" vessels not less than one and one-half inches. The bilge suction shall be fitted with suitable strainers having an open area not less than three times the area of the bilge pipe.

(c) The individual bilge suction lines shall be led to a central control point or manifold. Each line shall be provided with a stop valve at the control point or manifold and in addition shall be provided with a check valve at some accessible point in the bilge line. A stop-check valve located at the control point or manifold will meet the requirements for both a stop valve and a check valve.

(d) The bilge pipe piercing the collision bulkhead shall be fitted with a screw-down valve located on the forward side of the collision bulkhead and operable from above the weather deck. In lieu thereof, a screw-down valve without a reach rod may be fitted to the bilge line on the after side of the collision bulkhead if it is readily accessible under service conditions.

[CGFR 60-54, 25 FR 9332, Sept. 29, 1960, as amended by CGFR 63-40, 28 FR 9741, Sept. 6, 1963]

§ 182.25-10 Bilge pumps.

(a) *S and L*. All vessels shall be provided with bilge pumps in accordance with Table 182.25-10(a).

TABLE 182.25-10(a)

Number of passengers	Length of vessel	Bilge pumps required	Min. capacity required (gal. per minute)
is (any number of passengers)	Over 65 feet	2 fixed power pumps	50 GPM
is carrying more than 49 passengers and all "S" vessels.	65 feet and less	1 fixed power pump and 1 portable hand pump	25 GPM 5 GPM
is other than ferry vessels, carrying not more than 49 passengers	26 ft. up to 65 ft.	1 fixed power pump and 1 portable hand pump or 1 fixed hand pump and 1 portable hand pump	10 GPM 5 GPM 10 GPM 5 GPM
	Less than 26 feet	1 portable hand pump	5 GPM

S. The fixed power bilge pump shall be self-priming and may be driven off the main engine or other source of power. It shall be permanently connected to the bilge main and may also be connected to the fire main. If of sufficient capacity the bilge pump may also serve as a fire pump.

L. The two required fixed power pumps shall be self-priming and each be driven by different sources of power. If one pump is driven off the main engine in a single engine installation, the other shall be independently driven. In a twin engine installation, each pump may be driven off a main propulsion engine. The pumps shall be permanently connected to the bilge main and may also be connected to the fire main.

S and L. The fixed hand bilge pump shall be permanently connected to the bilge main and may also be connected to the fire main.

S and L. The portable hand bilge pump shall be provided with suitable piping for pumping bilges on the suction and discharge ends. This pump may also serve as a portable fire pump of sufficient capacity.

R 63-40, 28 FR 9741, Sept. 6, 1963]

182.25-15 Ballast systems.

For all vessels contracted for on or after January 1, 1962, ballast piping shall not be installed to any hull component of a wooden vessel. Where

the carriage of liquid ballast in such vessels is necessary, suitable ballast tanks, structurally independent of the hull, shall be provided.

(b) For all vessels contracted for prior to January 1, 1962, ballast systems shall meet the requirements of this section insofar as deemed reasonable and practicable by the Officer in Charge, Marine Inspection.

[CGFR 61-13, 26 FR 3927, May 5, 1961]

Subpart 182.30—Steering Apparatus

§ 182.30-1 Main steering apparatus.

(a) All vessels except non-self-propelled vessels shall be provided with suitable steering apparatus.

§ 182.30-5 Auxiliary steering apparatus.

(a) Except as further modified in this section, all single screw vessels in ocean and coastwise service shall be provided with an auxiliary steering arrangement located above the weather deck. A suitable hand tiller will be acceptable for this purpose.

(b) Auxiliary steering will not be required where no regular rudder is fitted and steering action is obtained by a change of setting of the propelling unit, or where a rudder and tiller is the normal means of steering.

Subpart 182.35—Separation of Machinery and Fuel Tank Spaces From Accommodation Spaces

§ 182.35-1 Bulkheads.

(a) Except as otherwise provided in this section, machinery and fuel tank spaces shall be separated from accommodation spaces by watertight and/or vapor tight bulkheads of double diagonal wood, marine plywood, steel plate, or equivalent construction.

(b) Where segregation can be obtained by means of a watertight and/or vapor tight engine box, this will be accepted as a substitute for the required bulkheads.

Subpart 182.40—Nonmetallic Piping Materials

SOURCE: CGFR 70-143, 35 FR 19969, Dec. 30, 1970, unless otherwise noted.

§ 182.40-1 General.

(a) Where rigid nonmetallic material is permitted for use in piping systems by this subpart, the following restrictions shall be adhered to:

(1) Penetrations of required watertight decks and bulkheads by any rigid plastic pipe systems are prohibited, except when:

(i) Each such penetration is accomplished using an acceptable metallic fitting, welded or otherwise attached to the bulkhead or deck by an acceptable method; and

(ii) An acceptable metallic shutoff valve is installed adjacent to the through deck or through bulkhead fitting. This valve shall be operable from above the bulkhead deck. If two valves are installed, one on either side of the bulkhead, the valves need not be operable from above the bulkhead deck provided immediate access to both is possible. Where both plastic and metallic pipes are used in a bulkhead penetrating system and where the two materials exist entirely on opposite sides of the bulkhead, the required shutoff valve shall be installed at the bulkhead in the metallic part of the system, and may be locally operated provided immediate access is possible.

(2) Protection from mechanical damage shall be specially considered. Protective covering or shields shall be

installed to the satisfaction of the Officer in Charge, Marine Inspection.

(3) Through hull fittings and off valves shall be metal. In the case of nonmetallic hulls, materials will afford an equal degree of strength and heat resistivity as that afforded by the hull may be approved.

(4) The material specification shall show that the rigid nonmetallic material possesses characteristics adequate for its intended service and environment and shall be approved for use by the Officer in Charge, Marine Inspection.

§ 182.40-5 Vital systems.

(a) Nonmetallic piping shall not be used in gasoline and diesel fuel systems except where permitted by §§ 182.15-40 and 182.20-40.

(b) Mechanically propelled "S" vessels which are ferry vessels or which carry more than 49 passengers shall comply with the provisions of Subchapter F of this chapter. Rigid nonmetallic materials are acceptable for use in bilge, ballast and machine connected piping systems on all other vessels.

§ 182.40-10 Non-vital systems.

(a) Rigid nonmetallic materials are acceptable for use in non-vital piping systems.

PART 183—ELECTRICAL INSTALLATION

Subpart 183.01—Application and Intent

Sec.

183.01-1 Application.

183.01-5 Intent.

183.01-10 Special consideration for vital systems.

183.01-15 General standards and requirements.

Subpart 183.05—Electrical Installations Operating at Potentials of Less Than 50 Volts

183.05-1 Application.

183.05-5 Name plates (less than 50 volts).

183.05-10 Generators and motors (less than 50 volts).

183.05-15 Switchboards (less than 50 volts).

183.05-20 Batteries (less than 50 volts).

§ 183.01-15

- Sec.
183.05-25 Radio-phone equipment (less than 50 volts).
183.05-30 Circuit breakers (less than 50 volts).
183.05-35 Accessories (less than 50 volts).
183.05-40 Ignition wiring (installations less than 50 volts).
183.05-45 Lighting and power wiring size, insulation, etc. (less than 50 volts).
183.05-50 Lighting and power wiring installation (less than 50 volts).

Subpart 183.10—Electrical Installations Operating at Potentials of 50 Volts or More

- 183.10-1 Application.
183.10-5 Generators and motors (50 volts or more).
183.10-10 Equipment protection and enclosure (50 volts or more).
183.10-15 Main distribution panels (50 volts or more).
183.10-20 Wiring methods and materials (50 volts or more).
183.10-25 Disconnect switches and devices (50 volts or more).
183.10-30 Distribution and circuit loads (50 volts or more).
183.10-35 Overcurrent protection, general (50 volts or more).
183.10-40 Overcurrent protection for motors and motor branch circuits.
183.10-45 Electric heating and cooking equipment (50 volts or more).
183.10-50 Shore power (50 volts or more).

AUTHORITY: 46 U.S.C. 3306; 49 CFR 1.46.

SOURCE: CGFR 60-54, 25 FR 9338, Sept. 29, 1960, unless otherwise noted.

Subpart 183.01—Application and Intent

§ 183.01-1 Application.

(a) The provisions of this part shall apply to the electrical installations on all vessels contracted for on or after June 1, 1958. Electrical installations on vessels contracted for prior to that date shall meet the requirements of this part insofar as is deemed reasonable and practicable by the Officer in Charge, Marine Inspection.

§ 183.01-5 Intent.

(a) This part is intended to provide a minimum standard of regulations for electrical installations and equipment that will result in a vessel that is reasonably safe from fire caused by and/or originating in electrical equipment,

and reasonably safe from electrical shock of personnel.

§ 183.01-10 Special consideration for vital systems.

(a) Electrical equipment and circuits which are a necessary part of any system vital to the safe navigation of the vessel, such as propulsion and steering systems, will be given special consideration and shall be subject to certain additional requirements as determined by the Officer in Charge, Marine Inspection. These additional requirements are contained in applicable regulations in Subchapter J (Electrical Engineering) of this chapter.

§ 183.01-15 General standards and requirements.

(a) All electrical installations shall be to the satisfaction of the Officer in Charge, Marine Inspection.

(b) The regulations contained in this part are substantially in accord with, and in general are based upon established codes and recognized marine standards and practices. Certain of these codes and publications are referred to specifically in some regulations in this part. A list of the publications follows:

(1) Electrical Engineering Regulations, CG-259, published by United States Coast Guard.

(2) Recommended Practice for Electric Installations On Shipboard, AIEE No. 45, published by American Institute of Electrical Engineers, 33 West Thirty-ninth Street, New York 18, N.Y.

(3) National Electrical Code, published by National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

(4) Standard for Marine Type Electric Lighting Fixtures, Subject 595, published by Underwriters' Laboratories, Inc., 207 East Ohio Street, Chicago 11, Ill.

(5) Standard for Commercial Electric Cooking Appliances, published by Underwriters' Laboratories, Inc., 207 East Ohio Street, Chicago, Ill. 60611.

§ 183.05-1

Subpart 183.05—Electrical Installations Operating at Potentials of Less Than 50 Volts

§ 183.05-1 Application.

(a) The regulations in this subpart apply to electrical installations operating at potentials of less than 50 volts. Regulations covering electrical installations of 50 volts or more are contained in Subpart 183.10 of this part.

§ 183.05-5 Name plates (less than 50 volts).

(a) Each generator, motor and other major items of power equipment shall be provided with a name plate indicating the maker's name, its rating in volts and amperes or in volts and watts and when intended for connection to a normally grounded supply, the grounding polarity.

§ 183.05-10 Generators and motors (less than 50 volts).

(a) *L.* If both of the required fixed power bilge pumps (Table 182.25-10(a)) are electrically driven, two generators shall be provided. One of these generators shall be driven by a means independent of the main propulsion plant.

(b) *S and L.* Generators and motors shall be placed in dry, accessible and adequately ventilated locations.

(c) *S and L.* Independent generators and motors should be mounted on foundations as high as practicable above the bilges to avoid damage by splash or contact with low lying vapors. They shall not be located in low or pocketed positions.

(d) *S and L.* All generators shall be suitably protected from overcurrent by circuit breakers, fuses or by an overcurrent relay.

(e) *S and L.* Overcurrent protection of a third brush type generator shall open the field circuit.

(f) *S and L.* An emergency switch shall be provided in the normally undergrounded main supply conductor from the battery and located as closely as practicable to the supply battery.

[CGFR 63-40, 28 FR 9741, Sept. 6, 1963]

46 CFR Ch. I (10-1-90 Edition)

§ 183.05-15 Switchboards (less than 50 volts).

(a) Switchboards shall be placed in dry, accessible and adequately ventilated locations preferably outside the engine compartment. The switchboard shall be adequately protected and provision shall be made for access thereto. All uninsulated current carrying parts shall be mounted on nonabsorbent, noncombustible, high dielectric insulating material.

(b) Totally enclosed switchboards of the dead front type shall be used whenever they are accessible to passengers.

(c) Each ungrounded conductor of circuit supplying lights, motors or appliances shall be equipped with a circuit breaker or switch and fuses at the point of attachment to the power source. This applies also to added circuits.

(d) Switches other than those mounted on the switchboard shall be of the enclosed type.

(e) If the storage battery is not in the same compartment and adjacent to the panel or box which distributes power to the various lighting, motor and appliance branch circuits the storage battery lead shall be fused close to the battery.

§ 183.05-20 Batteries (less than 50 volts).

(a) Batteries shall be so located that the gas generated in charging will be easily dissipated by natural or induced ventilation. Batteries should not be located in the same compartment with a gasoline tank or gasoline engine, but where location elsewhere is impracticable, they shall be effectively screened by a cage or similar structure to minimize the danger of accidental spark through dropping a metal object across terminals.

(b) Batteries shall be located as high above the bilge as practicable and secured against shifting with motion of the boat. They shall be accessible with not less than 10 inches head room.

(c) Battery terminals shall be of the soldered type and all connections shall be made to the battery terminals with permanent type connectors. Spring clips or other temporary type clamps are not permitted.

acid batteries shall be located in lead or other suitable material resistant to deteriorating action by electrolyte.

Alkaline batteries employing containers shall be mounted on insulating support and shall be prevented from coming in contact with other metal which may result in a short circuit.

A battery charger intended for use in connection with a commercial supply shall employ a transformer of the autotransformer type. An ammeter that is visible shall be included in the charger circuit.

A voltage dropping resistor proper for charging a battery shall be installed in a suitable ventilated non-combustible enclosure, so installed as to prevent hazardous temperatures at the terminals and at combustible materials.

25 Radio-phone equipment (less than 50 volts).

Each radio-telephone shall be on a separate circuit, fused at the distribution panel shall be provided for each radio-telephone installation.

The supply cable to the radio-telephone installation shall be large enough to carry the current under any condition of normal operation.

30 Circuit breakers (less than 50 volts).

Circuit breakers, of the proper rating, shall be of the manual-reset type designed for inverse time tripping, capable of repeatedly breaking the circuit in which it is to be used without damage to the circuit.

35 Accessories (less than 50 volts).

Accessories, such as switches, outlets, and sockets, shall be standard types listed in the National Electrical Code types for the purpose and shall be of the type specified by, or types equal to those listed by Underwriters' Laboratories, or other recognized testing laboratories.

Lighting, receptacles and switches shall be weather resistant and on vessels operating in

salt water, shall be constructed of corrosion-resistant material.

§ 183.05-40 Ignition wiring (installations less than 50 volts).

(a) Ignition wiring as supplied or recommended by engine manufacturers is generally acceptable.

§ 183.05-45 Lighting and power wiring (size, insulation, etc. (less than 50 volts).

(a) Wiring sizes for lighting and power shall be in accordance with Table 183.05-45(a).

TABLE 183.05-45(a)—ALLOWABLE CURRENT-CARRYING CAPACITIES OF CONDUCTORS BASED ON ROOM TEMPERATURE OF 30° C., 86° F.

[See National Electrical Code for other sizes]

Size gauge No. A.W.G.	Area in circular mils	Capacity of wire	
		Rubber insulated types R, RW, RU (sizes 12-6)— Thermoplastic insulated types T, TW (all sizes)	Rubber insulated type RH
		Amperes	Amperes
14.....	4,107	15	15
12.....	6,530	20	20
10.....	10,380	30	30
8.....	16,510	40	45
6.....	26,250	55	65
4.....	41,740	70	85
3.....	52,630	80	100
2.....	66,370	95	115
1.....	83,690	110	130

NOTES: (1) The current-carrying capacities listed in this table are for 1-, 2-, and 3-conductor cables; 80 percent of these capacities must be used for 4-, 5-, and 6-conductor cables, and 70 percent for 7-, 8-, and 9-conductor cables.

(2) The allowable current-carrying capacities in this table are based on temperature alone and do not take voltage drop into consideration.

(b) As a precaution against rupture by vibration, all conductors shall be of the stranded type, except where type MI cable is employed, and no conductor smaller than No. 14 A.W.G. shall be used except for short fixture leads or intercommunication wiring as set forth in paragraph (k) of this section.

(c) Table 183.05-45(c) indicates the size of conductor required for corresponding lengths and steady state (stable) values to obtain a voltage drop of not more than 10 percent at the load terminals of a two conductor circuit.

§ 183.05-45

TABLE 183.05-45(c)—CONDUCTOR SIZES FOR
AMPERES—LENGTHS

Total current on circuit, amperes	Length of conductor in feet from source of current to most distant fixture										
	10	15	20	25	30	35	40	45	50	55	60
6 volts, 2-wire—10 percent drop wire sizes (A.W.G.)											
5.....	14	14	14	12	12	12	10	10	10	10	8
10.....	14	12	10	10	8	8	8	8	6	6	6
15.....	12	10	8	8	8	6	6	6	4	4	4
20.....	10	8	8	6	6	6	4	4	4	4	3
25.....	10	8	6	6	4	4	4	4	3	3	2
12 volts, 2-wire—10 percent drop wire sizes (A.W.G.)											
5.....	14	14	14	14	14	14	14	12	12	12	12
10.....	14	14	14	12	12	12	10	10	10	10	8
15.....	14	14	12	10	10	10	8	8	8	8	8
20.....	12	12	10	10	8	8	8	8	6	6	6
25.....	10	10	10	8	8	8	6	6	6	6	4

Other values can be computed by
means of the following formula:

46 CFR Ch. I (10-1-90 Edition)

$$cm = \frac{K \times I \times L \times 2 \text{ for two-wire circuit}}{E} \quad (1)$$

Where:

cm = Circular-mil area of conductor.
K = 10.75 (a constant representing the mil-
foot resistance of copper).
I = Load current, in amperes.
L = Length of conductor from center of dis-
tribution, in feet.
E = Voltage drop at load, in volts.

(d) After computing the circular-mil
area required, reference may be made
to Table 183.05-45(a) for selection of
the required conductor gage size.
When the computed circular-mil area
is found to be less than any value
given in the table, the next larger size
conductor shall be used.

(e) Light and power conductors for
interior wiring shall be insulated in ac-
cordance with Table 183.05-45(e).

R	Code	Code—rubber	14-12 10 8-2 1	$\frac{3}{4}$ in. $\frac{3}{4}$ in. $\frac{3}{4}$ in. $\frac{3}{4}$ in.	Moisture-resistant, flame-retardant, fibrous covering	60° C. 140° F.	General use.
RW	Moisture-resistant	Moisture-resistant rubber	14-12 8-2 1	$\frac{3}{4}$ in. $\frac{3}{4}$ in. $\frac{3}{4}$ in.	Moisture-resistant, flame-retardant, fibrous covering	60° C. 140° F.	General use and wet locations.
RU	Latex	90% unmillad granules rubber.	14-10 8-6	18 mils 25 mils	Moisture-resistant, flame-retardant, fibrous covering	60° C. 140° F.	General use.
RH	Heat-resistant	Heat-resistant rubber	14-12 10 8-2 1	$\frac{3}{4}$ in. $\frac{3}{4}$ in. $\frac{3}{4}$ in. $\frac{3}{4}$ in.	Moisture-resistant, flame-retardant, fibrous covering	75° C. 167° F.	General use.
T	Thermoplastic	Flame-retardant thermoplastic compound.	14-10 8 6-2 1	$\frac{3}{4}$ in. $\frac{3}{4}$ in. $\frac{3}{4}$ in. $\frac{3}{4}$ in.	None	60° C. 140° F.	General use.
TW	Moisture-resistant, thermoplastic.	Flame-retardant, moisture-resistant thermoplastic.	14-10 8 6-2 1	$\frac{3}{4}$ in. $\frac{3}{4}$ in. $\frac{3}{4}$ in. $\frac{3}{4}$ in.	None	60° C. 140° F.	General use and wet locations.

¹ See National Electrical Code issued by National Fire Protection Association, 90 Batterymarch Street, Boston, Mass. 02110.

§ 183.05-50

46 CFR Ch. I (10-1-90 Edition)

(f) Where desired, non-metallic sheathed multiple conductor cable may be employed instead of individual conductors.

(g) Lead sheathed unarmored conductors and conductors armored with spiral wound flat metal stripping shall not be used.

(h) Conductors armored with metallic basket weave, with or without inside lead sheathing, depending upon location, in accordance with the A.I.E.E. standard No. 45, Recommend-

ed Practice for Electrical Installations on Shipboard, may be used.

(i) Where desired, metallic sheathed cable type MI, as defined in the National Electrical Code, may be used. (This standard may be obtained from National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.)

(j) Conductors, from receptacles to fixtures, shall be flexible cord in accordance with Tables 183.05-45(j)(1) and 183.05-45(j)(2).

TABLE 183.05-45(j)(1)—FLEXIBLE CORDS

Type letter ¹	Trade name	Size A.W.G.	No. of conductors	Conductor insulation	Outer covering	Use
S.....	Hard service cord.	18 to 10 inclusive.	2 or more	Rubber thermoplastic.	Rubber.....	Pendant or portable lamp places. Extra hard usage.
SO.....					Oil resistant compound.....	
ST.....					Thermoplastic.....	

¹ See National Electrical Code issued by National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

TABLE 183.05-45(j)(2)—ALLOWABLE CURRENT-CARRYING CAPACITY OF FLEXIBLE CORD

Size A.W.G.	Amperes
18.....	7
16.....	10
14.....	15
12.....	20
10.....	25

(k) For intercommunication wiring, rubber or thermoplastic covered single braid IC cable, type RF-32 (rubber covered fixture wire— $\frac{1}{32}$ -in. installation) stranded and not smaller than No. 18 A.W.G. or equivalent shall be used. Commercial bell wire shall not be used.

§ 183.05-50 Lighting and power wiring installation (less than 50 volts).

(a) *Wiring.* (1) All wiring shall be run as high as practicable above bilges.

(2) Wiring, where subject to mechanical damage shall be protected in accordance with the National Electrical Code: article 352 for metal raceways, article 346 for conduit, and article 348 for metallic tubing.

(b) *Wiring joints and splices.* (1) Wiring joints and splices shall be mechanically secure and made in junction boxes.

(2) Unless a splice is made by an insulated pressure wire connector listed by Underwriters' Laboratories, Inc., it shall be thoroughly soldered, taped first with rubber and then with friction tape, or the soldered joint shall be otherwise protected as to provide an insulation the same as that of the conductors joined.

(3) Where ends of stranded conductors are to be clamped under terminal screws, they shall be formed and soldered unless fitted with pressure terminal connectors listed by Underwriters' Laboratories, Inc.

(c) *Conductors.* (1) Conductors shall be protected from overcurrent in accordance with their current-carrying capacities as given in Table 183.05-45(a).

NOTE: Overcurrent protection for conductors is provided for the purpose of opening the electric circuit if the current reaches a value which will cause an excessive or dangerous temperature in the conductor or conductor insulation.

The conductors supplying motors of motor operated appliances shall be protected by a separate overcurrent device which is responsive to motor current. This device shall be rated or set at not more than 125 percent of motor full-load current rating.

Grounding. (1) On metal vessels enclosures and frames of all major electrical equipment shall be permanently grounded to the metal hull of vessel by the mounting bolts or other means. The term "grounded" in this case means that a normally non-current carrying conductor is used to connect the non-current carrying metal enclosures or frames of the electrical equipment to any metal area which is electrically continuous with the wetted surface of the metal hull. For example, a metal enclosure would be considered as grounded if it was attached to a metal bulkhead by metal bolts, and if the bulkhead was welded and bolted to a metal hull).

(2) On wooden vessels, bonding together of the enclosures and frames of major electrical equipment to a common ground shall be effected. This means that a normally non-current carrying conductor is used to connect non-current carrying metal enclosures or frames of major electrical equipment to a common, electrically continuous, metal network that takes the place of a metal hull.

(3) For grounded systems the negative polarity of the supply source shall be grounded to the metal hull. For wooden vessels, connected to common ground, but shall not normally carry current.

(4) On a wooden vessel where a bonding plate is provided for radio equipment it shall be connected to the common ground.

(5) For grounded systems, the use of a return is not recommended except for engine starting purposes.

Subpart 183.10—Electrical Installations Operating at Potentials of 50 Volts or More

183.10-1 Application.

The regulations in this subpart apply to electrical installations operating at potentials of 50 volts or more. Installations covering electrical instal-

lations of less than 50 volts are contained in Subpart 183.05 of this part.

§ 183.10-5 Generators and motors (50 volts or more).

(a) *S and L.* Each major generator and motor shall be fitted with a nameplate of corrosion-resistant material marked with the following information as applicable:

- (1) Name of manufacturer.
- (2) Manufacturer's type and frame designation.
- (3) Output in KW of watts or horsepower rating.
- (4) Kind of rating (continuous, intermittent, etc.).
- (5) Revolutions per minute at rated load.
- (6) Amperes at rated load.
- (7) Voltage.
- (8) Frequency if applicable.
- (9) Number of phases, if applicable.
- (10) Type of winding (for direct-current motors).

(b) *L.* If both of the required fixed power bilge pumps (Table 182.25-10(a)) are electrically driven, two generators shall be provided. One of these generators shall be driven by a means independent of the main propulsion plant.

(c) *S and L.* Generators and motors shall be mounted as high as practicable above the bilges to avoid damage by splash or contact with low lying vapors. They shall not be located in low or pocketed positions.

(d) *S and L.* Generators and motors for use below decks shall be located in as dry a place as practicable.

(e) *S and L.* Motors for use in locations exposed to the weather shall be of the watertight type or shall be enclosed in watertight housings. The motor enclosure or housing shall be provided with a check valve for drainage or a tapped hole at the lowest part of the frame which will serve for application of a drain pipe or drain plug.

(f) *S and L.* Generators and motors for use in machinery spaces shall generally be designed for an ambient temperature of 50° C. (122° F.). Generators and motors for use in locations where the ambient temperature will not exceed 40° C. (104° F.) may be designed for an ambient temperature of 40° C.

§ 183.10-10

(1) If it can be substantiated that the ambient temperature in machinery spaces will not exceed 40° C. under normal operating conditions, the motors and generators may be designed for an ambient temperature of 40° C.

(2) Generators and motors designed for 40° C. may be used in 50° C. ambient locations provided the machines are derated to 80 percent of full load rating, and the rating or setting of the overcurrent devices is reduced accordingly. An additional nameplate specifying the derated capacity shall be provided for each such motor and generator.

(g) *S* and *L*. A voltmeter and an ammeter shall be provided that can be used for measuring voltage and current of each generator that is in operation. For alternating-current generators a means for measuring frequency shall also be provided. Additional control equipment and measuring instruments shall be provided as necessary to insure satisfactory operation of the generator or generators.

[CGFR 63-40, 28 FR 9741, Sept. 6, 1963]

§ 183.10-10 Equipment protection and enclosure (50 volts or more).

(a) Except as provided otherwise in this subpart, all electrical equipment including motors, generators, controllers, distribution panels, etc., shall be dripproof protected. Dripproof protected means that equipment and machinery is so constructed or protected that its successful operation is not interfered with when subjected to falling moisture or dirt, and rotating or uninsulated parts cannot be inadvertently touched or approached nearer than a safe distance by any person.

(b) Equipment mounted on a hinged door of an enclosure shall be constructed or shielded in such a manner that no live parts of the door mounted equipment will be exposed to accidental contact by a person with the door open and the circuit energized.

(c) Any cabinet, panel, or box containing more than one source of potential in excess of 24 volts shall be fitted with a permanent sign warning personnel of this condition and identifying the circuits to be disconnected to

46 CFR Ch. I (10-1-90 Edition)

remove all potentials in excess of 24 volts.

(d) Distribution panel boards shall be the safety type.

§ 183.10-15 Main distribution panels (50 volts or more).

(a) The main distribution panel is that device to which the generator leads are connected, and from which the electric leads throughout the vessel directly or indirectly receive their electric power.

(1) If the main distribution panel is floor mounted and is not dripproof protected, it is considered to be a switchboard.

(b) Switchboards shall be fitted with driphoods and non-conducting hand rails. Non-conducting mats or grating shall be provided on deck in front and rear of switchboards.

(c) Adequate working space shall be provided around all main distribution panels and switchboards. Not less than 24" shall be provided in front of main distribution panels and switchboards and not less than 18" shall be provided in the rear of switchboards that are accessible from the rear.

(d) Metal cases of instruments and secondary windings of instrument transformers shall be grounded.

(e) Main distribution panels shall be placed in dry, accessible, and adequately ventilated locations preferably outside the engine compartment. All uninsulated current carrying parts shall be mounted on nonabsorbent, noncombustible, high dielectric insulating material.

(f) Main distribution panels shall be of the dead front type where voltage to ground is in excess of 150 volts A.C. or 250 volts D.C.

§ 183.10-20 Wiring methods and materials (50 volts or more).

(a) All wiring and cables shall be suitable for marine service and for the particular installation used. In addition—

(1) Cable must be constructed in accordance with U.S. Navy Standards, Institute of Electrical and Electronic Engineers Recommended Practice 45, or be a suitable commercial grade cable, with stranded conductors, that

§ 183.10-20

Underwriters Laboratories listed rated for at least 75° C. service;
 b) Flexible or portable cords such as STO, and similar types cannot be used for permanently installed wiring;
 c) All commercial grade cables must be specifically approved for each installation.
 b(1) Electric cable for installation in damp or wet location must be—
 i) Impervious sheathed;
 ii) Impervious sheathed and armored;
 iii) Reinforced sheathed and armored;

(iv) Lead and armored; or
 (v) Mineral insulated metal sheathed.
 (2) The armor of cable subject to salt water or salt water spray may be—
 (i) Bronze; or
 (ii) Aluminum.
 (3) The sheath of mineral insulated metal sheathed cable must be seamless annealed copper.
 (c)(1) Electric lighting and power cable shall not be allowed to carry a continuous current in excess of the maximum current capacities listed in Tables 183.10-20(c)(1) and (2).

TABLE 183.10-20(c)(1) IEEE-45 MARINE CABLE—MAXIMUM CURRENT-CARRYING CAPACITIES FOR CONTINUOUS SERVICE ¹

Conductor size		Current in amperes								
		1-conductor			2-conductor			3-conductor		
		R or T	B or V	AV or S	R or T	B or V	AV or S	R or T	B or V	AV or S
12,000	4/0	264	350	383	228	287	314	199	243	265
10,000	3/0	245	308	337	197	252	275	175	211	231
8,000	2/0	212	266	293	171	219	238	153	184	201
6,300	1/0	183	233	254	151	192	210	132	160	175
5,000	1	157	200	219	131	167	183	116	138	150
4,000	2	136	172	188	113	145	158	101	120	131
3,150	3	117	149	163	100	125	138	88	104	113
2,500	4	100	129	141	87	110	120	78	90	96
2,000	5	84	112	122	76	96	105	67	79	87
1,600	6	74	97	107	66	84	91	58	69	74
1,250	7	64	84	91	58	72	79	52	59	64
1,000	8	54	75	81	50	62	68	46	52	57
800	10	40	55	60	38	47	52	34	40	43
630	12	28	36	39	26	30	33	25	26	29
500	14	18		22	17		21	15		19

¹The values given in this table are based upon an ambient temperature of 40°C and maximum conductor temperature of 75°C for types R (thermosetting heat resistant rubber) and T (thermoplastic polyvinyl chloride) cables; 85°C for types B (thermosetting high temperature rubber) and V (varnished cloth) cables; 90°C for types S (silicone rubber) and AV (asbestos-varnished cloth) cable.

TABLE 183.10(c)(2)¹ COMMERCIAL CABLE—MAXIMUM CURRENT-CARRYING CAPACITIES FOR CONTINUOUS SERVICE—3 OR LESS CONDUCTORS

[Current in amperes]			
Conductor size		Temperature rating of conductors	
Area (Circular mils)	A.W.G.	75° C	85° C and 90° C
12,000	4/0	202	211
10,000	3/0	178	189
8,000	2/0	154	166
6,300	1/0	132	139
5,000	1	114	126
4,000	2	101	108
3,150	3	88	94

TABLE 183.10(c)(2)¹ COMMERCIAL CABLE—MAXIMUM CURRENT-CARRYING CAPACITIES FOR CONTINUOUS SERVICE—3 OR LESS CONDUCTORS—Continued

[Current in amperes]			
Conductor size		Temperature rating of conductors	
Area (Circular mils)	A.W.G.	75° C	85° C and 90° C
41,700	4	75	81
26,300	6	57	63
16,500	8	40	45
10,400	10	26	36
6,530	12	18	27
4,110	14	13	22

¹ Extracted from the National Electric Code.

(2) A commercial cable's temperature rating other than those listed in Table 183.10-20(c)(2) must be current rated in accordance with the National Electric Code for 40° C. ambient temperatures.

(3) A Navy cable must be rated in accordance with current published Navy standards.

(d) All wiring shall be run as high as practicable above bilges.

(e) All cables installed where particularly liable to damage such as locations in way of doors, hatches, etc., shall be specially protected by removable metal coverings, angle irons, pipe, or other equivalent means. All such metallic coverings are to be electrically continuous and effectively grounded to the metal hull or common ground, and all such coverings such as pipe which may trap moisture shall be provided with holes for drainage. Where cable protection is carried through watertight decks or bulkheads, the installation shall be such that will insure the watertight integrity of the structure.

(f) Cables entering boxes or fittings shall be protected from abrasion, and shall conform with the following requirements:

(1) Openings through which conductors enter shall be adequately closed.

(2) The cable armor shall be secured to the box or fitting.

(3) In damp or wet locations, the cable entrance shall be watertight.

(g) The enclosures of all equipment shall be permanently grounded to the metal hull of the vessel by the mounting bolts or other means. The term "grounded" in this case means that a normally non-current carrying conductor is used to connect the non-current carrying metal enclosures of electrical equipment to any metal area which is electrically continuous with the wetted surface of the metal hull (for example, a metal enclosure would be considered as grounded if it was attached to a metal bulkhead by metal bolts, and if the bulkhead was welded or bolted to a metal hull). On a wooden vessel, bonding together of the enclosures to a common ground shall be effected. This means that a normally non-current carrying conductor is

used to connect the non-current carrying metal enclosures of electrical equipment to a common, electrically-continuous, metal network that takes the place of a metal hull.

(1) On a wooden vessel where a ground plate is provided for radio equipment it shall be connected to this common ground.

(2) When a vessel is connected to shore power, a bonding cable may be used to connect the metal hull or on wooden vessels the common ground, to shore ground.

(h) Each lead covered cable and each armored cable is to have the metallic covering electrically and mechanically continuous and grounded to the metal hull, or on wooden vessels, bonded to the common ground provided by paragraph (g) of this section, at each end of the run, except that final sub-circuits may be grounded at the supply end only.

(i) All equipment, including switches, fuses, lampholders, etc., shall be of a type designed for the potential involved and so identified.

(j) Junction boxes, connection boxes, and outlet boxes, shall have an internal depth of at least 1½ inches, except that when a box is incorporated in a fixture the depth may be decreased to not less than 1 inch provided the volume of the box is not less than 20 cubic inches. The free space within such boxes for each conductor, not counting fixture wires, shall not be less than that given in Table 183.10-20(j). Table 183.10-20(j) applies where no fittings or devices, such as cable clamps, hickeyes, switches or receptacles are contained in the box. Where one or more such devices are contained in the box, each such device shall count as one conductor. Each conductor terminated in the box is counted as one conductor.

TABLE 183.10-20(j)

A.W.G. size of conductor No.	Free space for each conductor in box, cubic inches
14.....	2.0
12.....	2.25
80.....	2.50
1.....	3.0

(c) Junction boxes, connection boxes, and outlet boxes, for use in damp or wet locations shall be of watertight construction.

(d) Lighting fixtures shall be constructed in accordance with the requirements of Underwriters' Laboratories, Inc. Standard for Marine Type Electric Lighting Fixtures, Subject to, or shall bear the proper Underwriters' Laboratories, Inc. "Marine Type" label, or shall be constructed in accordance with the requirements of other recognized testing laboratories.

(m) A separate circuit, fused at the main distribution panel shall be provided for each radiophone installation.

(n) Knife switches shall be so placed designed that gravity or vibration will not tend to close them. Knife switches, unless of the double throw type, shall be connected so that the blades are dead when the switch is in the open position. Circuits shall be connected to the fuse end of switches and to the coil end of circuit breakers, except that generator leads or incoming feeders may be connected to either end of circuit breakers.

(o) Receptacle outlets and attachment plugs for the attachment of portable lamps, tools, and similar apparatus supplies as ship's equipment and operating at 100 volts or more, shall provide a grounding pole and a grounding conductor in the portable cord, to ground the non-current carrying metal parts of the portable apparatus. Portable apparatus shall be deemed to be any apparatus served by means of a flexible extension cord, whether the apparatus is permanently mounted or not.

(1) Receptacle outlets of the type providing a grounded pole shall be of a distinctive design that will not permit the dead metal parts of portable apparatus to be connected to a live conductor.

CGFR 60-54, 25 FR 9338, Sept. 29, 1960, as amended by CGFR 72-35, 37 FR 4962, Mar. 1, 1972]

§ 183.10-25 Disconnect switches and devices (50 volts or more).

(a) Externally operable switches or circuit breakers shall be provided for motor and controller circuits and shall open all conductors of the circuit.

(1) If the disconnect means is not within sight of the equipment which the circuit supplies and is at a location accessible to passengers, means shall be provided for locking the disconnect device in the "open" position.

(2) For circuits protected by fuses, the disconnect switch required for fuses in § 183.10-35(b) will be considered as adequate for disconnecting the circuit from the supply.

(3) The disconnect means may be in the same enclosure with motor controllers.

(b) Disconnect means shall be provided to open all conductors of generator and shore power cables.

§ 183.10-30 Distribution and circuit loads (50 volts or more).

(a) In general the electrical source located within the vessel and distribution system shall not be grounded. That is, a current carrying conductor, or a part of the system electrically continuous with any current-carrying conductor, shall not be intentionally connected, directly or indirectly, to the metal hull, or on wooden vessels to the common ground. An electrical installation that has any current carrying conductor intentionally connected, directly or indirectly to the metal hull, or on wooden vessels to the common ground, shall be subject to certain additional requirements as determined by the Officer in Charge, Marine Inspection. These additional requirements are contained in applicable regulations in Subchapter J (Electrical Engineering) of this chapter.

(1) Figure 183.10-30(a)(1) shows a typical two wire electrical system showing various acceptable methods of circuit and equipment protection and control.

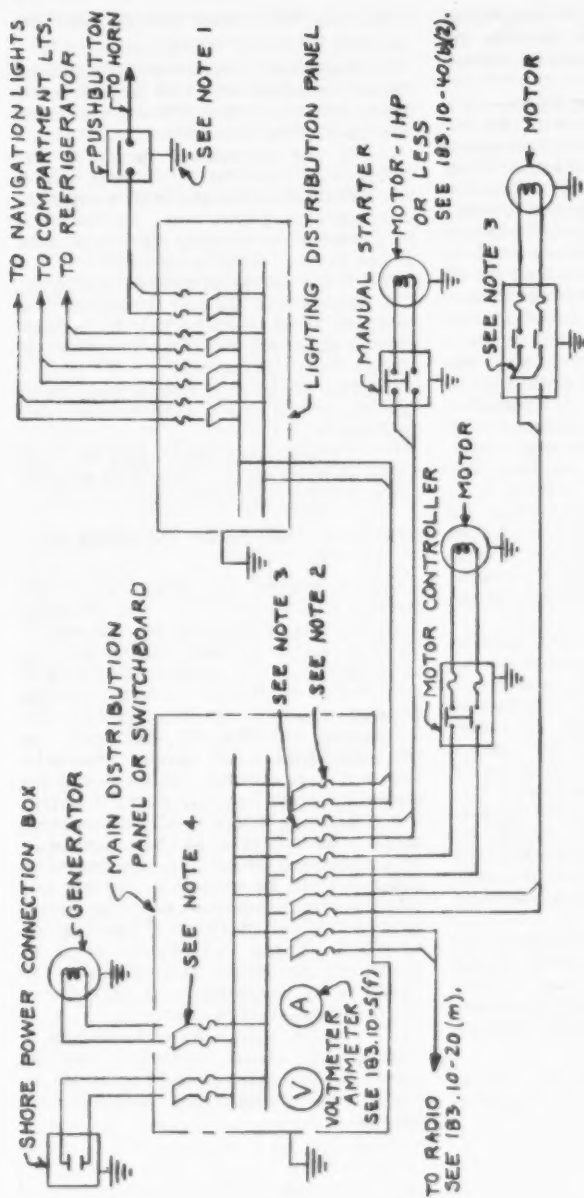


Figure 183.10-30(a)(1) - Typical ungrounded electrical system

Notes: 1. Ground symbol indicates a metal
2. Circuit breakers may be used in lieu of fuses.
3. Disconnect means not within sight of equipment.
4. A double pole double throw switch with one set of fuses may be used for disconnecting the generator and shore power cables. (See 183.10-20(a)(1))

ection to the vessel's metal hull or on wooden vessels it indicates bonding to the common ground. (See 183.10-20(a))
and fuses.
ant to be disconnected, which is accessible to passengers, shall be provided with means for locking in the open position. (See 183.10-20(a)(1))
254(a)(1)

All circuits are to be completely grounded and hull return shall not be connected to any other ground.

The shore power sources may be ungrounded or grounded.

The connected load on a lighting circuit shall not exceed 880 watts computed on the basis of the sizes to be installed, but in no case shall be more than 50 watts per outlet. Circuits supplying electrical discharge lighting shall be computed on the basis of the rated input current.

The branch circuit cables for lighting loads shall be not less than No. 14 AWG.

183.10-35 Overcurrent protection, general (50 volts or more).

Overcurrent protection shall be provided for each conductor for the purpose of opening the electric circuit when the current reaches a value which would cause an excessive or dangerous temperature in the conductor or conductor insulation.

Disconnect means shall be provided on the supply side of and adjacent to all fuses for the purpose of de-energizing the fuses for inspection and maintenance purposes.

All disconnect means shall open all conductors of the circuit simultaneously.

Conductors, including generator leads and shore power cables, shall be protected in accordance with current-carrying capacities, as given in Table 183.10-20(c).

(1) If the allowable current-carrying capacity of the conductor does not correspond to a standard size fuse, the next larger size or rating may be used, but not exceeding 150 percent of the allowable current-carrying capacity of the conductor. Plug (screw in type) fuses and fuseholders shall not be used in circuits exceeding 125 volts between conductors. The screw shell of plug type fuseholders shall be connected to the load of the circuit. Edison base fuses shall not be used.

Edison base fuses are those having leads like those on an ordinary light bulb.

(2) If the allowable current-carrying capacity of the conductor does not correspond to a standard rating of circuit breakers, the next larger rating may

be used but not exceeding 150 percent of the allowable current-carrying capacity of the conductor.

(d) Lighting branch circuits shall be protected against over-current either by fuses rated at not more than 10 amperes or by circuit breakers rated or set at not more than 15 amperes.

(e) Circuit breakers of the proper voltage rating shall be of the manually reset type designed for inverse time delay, instantaneous short circuit protection and capable of repeatedly opening the circuit in which it is to be used without damage to the circuit breaker.

(1) Circuit breakers shall indicate whether they are in the open or closed position.

(f) Devices such as instruments, pilot lights, ground detector lights, potential transformers, etc., shall be supplied by circuits protected by overcurrent devices.

(g) Each generator shall be protected with an overcurrent device set at a value not exceeding 15 percent above the full-load rating for continuous rated machines or the overload rating for special rated machines.

§ 183.10-40 Overcurrent protection for motors and motor branch circuits.

(a) All motors shall be provided with running protection against overcurrent in accordance with Table 183.10-40(a). A protective device integral with the motor which is responsive to motor current or to both motor current and temperature may be used.

(b) Overcurrent devices shall be installed to protect the motor branch circuit conductors, the motor control apparatus, and the motors against overcurrent due to short circuits or grounds.

(1) The motor branch circuit overcurrent device shall be capable of carrying the starting current of the motor. Overcurrent protection shall be considered as being obtained when this overcurrent device has a rating or setting not exceeding the values given in Table 183.10-40(a).

(2) Each manually started continuous duty motor rated at one horsepower or less which is within sight from the starter location, shall be consid-

§ 183.10-40

ered as protected against overcurrent by the overcurrent device protecting the conductors of the branch circuit. This branch circuit overcurrent device shall not be larger than that specified by Table 183.10-40(a), except that any such motor may be used at 125 volts or less on a branch circuit protected at 20 amperes.

46 CFR Ch. I (10-1-90 Edition)

(c) Motor branch circuit overcurrent protection and motor-running overcurrent protection may be combined in a single overcurrent device if the rating or setting of the device provides the running overcurrent protection specified in Table 183.10-40(a).

	Minimum size conductor AWG and MCM	For running
(a) Single-phase AC systems		
(1) General purpose	No. 6	
(2) Motor branch circuits	No. 8	
(3) Feeders	No. 10	
(b) Three-phase AC systems		
(1) General purpose	No. 8	
(2) Motor branch circuits	No. 10	
(3) Feeders	No. 12	
(c) DC systems		
(1) General purpose	No. 10	
(2) Motor branch circuits	No. 12	
(3) Feeders	No. 14	

257

TABLE 183.10-40(a)—CONDUCTOR SIZE AND OVERCURRENT PROTECTION FOR MOTORS—Continued

Full load current rating of motor in amperes	Minimum size conductor AWG and MCM						For running protection of motors (amperes) 1		Maximum allowable rating or setting of branch circuit protective devices (amperes)					
	1-conductor		2-conductor		3-conductor		Maximum rating of nonadjustable protective devices	Maximum setting of adjustable protective devices	With code letters F to V, inclusive: Single-phase and squirrel cage and synchronous, full voltage, reactor and reactor starting		With code letters B to E, inclusive: Single-phase and squirrel cage and synchronous, full voltage reactor or reactor starting. With code letters F to V, inclusive: Auto-transformer starting. Squirrel cage and synchronous, full voltage reactor and reactor starting. With code letters B to E, inclusive: Squirrel cage and synchronous, full voltage reactor and reactor starting. With code letters F to V, inclusive: Auto-transformer starting. Squirrel cage and synchronous, full voltage reactor and reactor starting.	With code letters B to E, inclusive: Squirrel cage and synchronous, full voltage reactor or reactor starting. With code letters F to V, inclusive: Auto-transformer starting. Squirrel cage and synchronous, full voltage reactor and reactor starting.		With code letter A, all motors. Without code letters: Direct connected squirrel cage and wound rotor motors
	R	VC	AVC	R	VC	AVC			Fuses	Circuit breakers (non-adjustable trip)	Fuses	Circuit breakers (non-adjustable trip)	Fuses	Circuit breakers (non-adjustable trip)
24	10	12	10	10	8	10	30	30.00	90	70	60	50	50	40
26	10	12	10	10	8	10	35	32.50	80	70	70	60	60	40
28	10	12	10	10	8	10	35	35.00	90	70	70	60	60	40
30	8	10	10	8	8	10	40	37.50	100	100	80	70	70	45
32	8	10	10	8	8	10	40	40.00	100	100	80	70	70	45
34	8	10	10	7	8	10	45	42.50	110	100	90	70	70	50
36	8	10	10	7	8	10	45	45.00	110	100	90	70	70	50
38	7	10	10	7	8	10	50	47.50	125	100	100	80	80	60
40	7	10	10	6	8	10	50	50.00	125	100	100	80	80	60
42	7	10	10	6	8	10	50	52.50	125	100	100	80	80	60
44	6	8	8	6	8	10	50	55.00	125	100	100	80	80	60
46	6	8	8	5	7	8	60	57.50	150	125	110	90	90	70
48	6	8	8	5	7	8	60	60.00	150	125	125	100	100	70
50	6	8	8	5	7	8	60	62.50	150	125	125	100	100	70
52	5	8	8	4	6	7	70	65.00	175	150	150	125	125	80
54	5	7	8	4	6	7	70	67.50	175	150	150	125	125	80
56	5	7	8	4	6	7	70	70.00	175	150	150	125	125	80
58	5	7	8	4	6	7	70	72.50	175	150	150	125	125	80
60	4	6	7	3	4	5	80	75.00	200	150	150	125	125	80
62	4	6	7	3	4	5	80	77.50	200	175	175	125	125	80
64	4	6	7	3	4	5	80	80.00	200	175	175	125	125	80

§ 183.10-40

1 For running protection of motors 1 horsepower or less, see § 163.10-40(b)(2).

§ 183.10-45

§ 183.10-45 Electric heating and cooking equipment (50 volts or more).

(a) Electric space heaters for heating rooms and compartments shall be provided with thermal cutouts to prevent overheating. Heaters shall be so constructed and installed to prevent the hanging of towels, clothing, etc. on the heaters, and to prevent overheating of heater parts and adjacent bulkheads or decks.

(b) All electric cooking equipment, attachments, and devices, shall be of rugged construction and so designed as to permit complete cleaning, maintenance, and repair.

(1) Doors shall be provided with heavy duty hinges and locking devices to prevent accidental opening in heavy seas.

(2) Electric cooking equipment shall be mounted to prevent dislodgement in heavy seas, and for grill or similar type cooking equipment means shall be provided to effect positive grease or fat collection and to prevent spillage on wiring or deck.

(3) Where necessary for safety of personnel, grab rails shall be provided. Electric ranges shall be provided with sea rails with suitable barriers to resist accidental cook pot movement.

(4) Unspecified construction and circuit details shall be in accordance with Underwriters' Laboratories, Inc., Standard for Commercial Electric Cooking Appliances.

§ 183.10-50 Shore power (50 volts or more).

(a) At a convenient location, a shore power connection box or receptacle shall be permanently installed and a cable connecting this box or receptacle to the main distribution panels shall be permanently installed.

(1) The shore power cable shall be provided with a disconnect means located on or near the main distribution panel.

46 CFR Ch. I (10-1-90 Edition)

PART 184—VESSEL CONTROL AND MISCELLANEOUS SYSTEMS AND EQUIPMENT

Subpart 184.01—Application and Intent

Sec.

184.01-1 Application.

184.01-3 Incorporation by reference.

184.01-4 OMB control numbers assigned pursuant to the Paperwork Reduction Act.

184.01-5 Intent.

Subpart 184.05—Cooking and Heating

184.05-1 Restrictions.

Subpart 184.10—Mooring Equipment

184.10-1 Anchors, cables, and hawsers.

Subpart 184.20—Compass

184.20-1 Vessels required to have compasses.

Subpart 184.25—Radio

184.25-1 Requirements of the Federal Communications Commission.

Subpart 184.30—Emergency Lighting

184.30-1 Portable lights.

184.30-5 Lights for lounge areas below the main deck.

Subpart 184.35—Engine Control

184.35-1 Engine room communication system.

Subpart 184.40—Work Vests

184.40-1 Approved unicellular plastic foam work vests.

184.40-5 Use.

184.40-10 Stowage.

184.40-15 Inspections.

AUTHORITY: 46 U.S.C. 3306; 49 CFR 1.46.

SOURCE: CGFR 60-54, 25 FR 9346, Sept. 29, 1960, unless otherwise noted.

Subpart 184.01—Application and Intent

§ 184.01-1 Application.

(a) The provisions of this part shall apply to all vessels except as specifically noted in this part.

§ 184.05-1

§ 184.01-3 Incorporation by reference.

(a) Certain materials are incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a). To enforce any edition other than the one listed in paragraph (b) of this section, notice of change must be published in the **FEDERAL REGISTER** and the material made available to the public. All approved material is on file at the Office of the Federal Register, 100 L Street NW., Washington, DC, and at the U.S. Coast Guard, Merchant Vessel Inspection and Documentation Division, (G-MVI), 2100 Second Street SW., Washington, DC 20593-0001, and is available from the sources indicated in paragraph (b) of this section.

(b) The materials approved for incorporation by reference in this part, and the sections affected are:

AMERICAN BOAT AND YACHT COUNCIL (ABYC)	
P.O. Box 747, 405 Headquarters Dr., Suite 3, Millersville, MD 21108-0747	
A-1-78—Marine LPG-Liquefied Petroleum Gas Systems (December 15, 1978).....	184.05-1
A-22-78—Marine CNG-Compressed Natural Gas Systems (December 15, 1978).....	184.05-1
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)	
1 Batterymarch Park, Quincy, MA 02260	
302-1989—Pleasure and Commercial Motor Craft, Chapter 6 (1989 Edition).....	184.05-1

[CGD 83-013, 55 FR 3690, Feb. 6, 1990]

§ 184.01-4 OMB control numbers assigned pursuant to the Paperwork Reduction Act

(a) *Purpose.* This section collects and displays the control numbers assigned to information collection and record-keeping requirements in this subchapter by the Office of Management and Budget (OMB) pursuant to the Paperwork Reduction Act of 1980 (44 U.S.C. 501 et seq.). The Coast Guard intends that this section comply with the requirements of 44 U.S.C. 3507(f), which requires that agencies display a current control number assigned by the Director of the OMB for each ap-

proved agency information collection requirement.

(b) *Display.*

46 CFR part or section where identified or described	Current OMB control No.
§ 184.05-1	2115-0549

[CGD 83-013, 54 FR 6403, Feb. 10, 1989, and CGD 83-013, 55 FR 3959, Feb. 6, 1990]

§ 184.01-5 Intent.

(a) The intent of this part is to insure that the vessel control systems and the miscellaneous systems and equipment required herein shall be suitable for the purpose intended.

Subpart 184.05—Cooking and Heating

§ 184.05-1 Restrictions.

(a) Cooking and heating equipment shall be suitable for marine use.

(b) Vessels permitted to use liquefied and non-liquefied gases as cooking fuels by 46 CFR Part 147 must meet the requirements of paragraph (d) of this section. The use of these fuels for cooking, heating, and lighting on ferry vessels is prohibited by 46 CFR Part 147.

(c) The use of gasoline for cooking, heating or lighting is prohibited on all vessels.

(d) Cooking systems using liquefied petroleum gas (LPG) and compressed natural gas (CNG) must meet the following requirements:

(1) The design, installation and testing of each LPG system must meet ABYC A-1-78 or Chapter 6 of NFPA 302.

(2) The design, installation and testing of each CNG system must meet ABYC A-22-78 or Chapter 6 of NFPA 302.

(3) Cooking systems using Chapter 6 of NFPA 302 as the standard must meet the following additional requirements:

(i) The storage or use of CNG containers within the accommodation area, machinery spaces, bilges, or other enclosed spaces is prohibited.

§ 184.10-1

(ii) LPG or CNG must be odorized in accordance with ABYC A-1.5.d or A-22.5.b, respectively.

(iii) The marking and mounting of LPG cylinders must be in accordance with ABYC A-1.6.b.

(iv) LPG cylinders must be of the vapor withdrawal type as specified in ABYC A-1.5.b.

(4) Continuous pilot lights or automatic glow plugs are prohibited for an LPG or CNG installation using ABYC A-1 or A-22 as the standard.

(5) CNG installations using ABYC A-22 as the standard must meet the following additional requirements:

(i) The storage or use of CNG containers within the accommodation area, machinery spaces, bilges, or other enclosed spaces is prohibited.

(ii) The CNG cylinders, regulating equipment, and safety equipment must meet the installation, stowage, and testing requirements of paragraph 6-5.12 of NFPA 302.

(iii) The use or stowage of stoves with attached CNG cylinders is prohibited as specified in paragraph 6-5.1 of NFPA 302.

(6) If the fuel supply line of an LPG or CNG system enters an enclosed space on the vessel, a remote shut-off valve must be installed which can be operated from a position adjacent to the appliance. The valve must be located between the fuel tank and the point where the fuel supply line enters the enclosed portion of the vessel. A power operated valve installed to meet this requirement must be of a type that will fail closed.

(7) The following variances from ABYC A-1.11.b(1) are allowed for CNG:

(i) The storage locker or housing access opening need not be in the top.

(ii) The locker or housing need not be above the waterline.

(8) The following variances from NFPA 302 are allowed:

(i) The storage locker or housing for CNG tank installations need not be above the waterline as required by paragraph 6-5.12.1.1(a).

(ii) Ignition protection need not be provided as required by paragraph 6-5.4.

[CGFR 6054, 25 FR 9346, Sept. 29, 1960, as amended by CGD 83-013, 54 FR 6403, Feb.

46 CFR Ch. I (10-1-90 Edition)

10, 1989; CGD 83-013, 55 FR 3960, Feb. 6, 1990]

Subpart 184.10—Mooring Equipment

§ 184.10-1 Anchors, cables, and hawsers.

(a) All vessels shall be fitted with such ground tackle and hawsers as deemed necessary by the Officer in Charge, Marine Inspection, depending upon the size of the vessel, the waters on which it operates, and other operating hazards.

Subpart 184.20—Compass

§ 184.20-1 Vessels required to have compasses.

(a) Except as otherwise provided in this section, every vessel shall be fitted with a suitable compass.

(b) The following vessels need not be fitted with a compass:

(1) Vessels in river service.

(2) Non-self-propelled vessels.

(3) Vessels operating in protected waters with short restricted routes.

Subpart 184.25—Radio

§ 184.25-1 Requirements of the Federal Communications Commission.

(a) Radio transmitting and receiving installations or radiotelephones are required on certain vessels carrying passengers. Details of the application of this requirement as well as the details of the installation shall be as set forth in the regulations of the Federal Communications Commission (47 CFR Chapter 1).

(b) If any violations of regulations enforced by the Federal Communications Commission are noted by the marine inspector, the owner and that agency shall be notified. A proper certificate issued by the Federal Communications Commission shall be regarded as evidence that the radio installation, if any, is in compliance with the requirements of that agency.

(c) All vessels on an international voyage which are required to carry a radiotelegraph or radiotelephone installation in accordance with Chapter IV of the Safety of Life at Sea Convention, 1960, must carry the International Code of Signals.

FR 60-54, 25 FR 9346, Sept. 29, 1960, as amended by CGD 75-074, 42 FR 5964, Jan. 1977]

Part 184.30—Emergency Lighting

30-1 Portable lights.

Vessels shall be equipped with a suitable number of portable battery lights.

FR 63-40, 28 FR 9742, Sept. 6, 1963]

30-5 Lights for lounge areas below the main deck.

Adequate emergency lighting automatically actuated upon failure of main lighting system shall be provided along the line of escape in vessels having lounge areas below the main deck as per Subpart 177.30-7 of this chapter.

Vessels not equipped with a main source emergency lighting system shall have individual storage battery powered automatically operated lights in strategic locations. These lights shall have an automatic battery charger, shall not be readily portable, shall have sufficient capacity for 6 hours continuous operation.

FR 63-40, 28 FR 9742, Sept. 6, 1963]

Subpart 184.35—Engine Control

35-1 Engineer's room communication system.

An efficient communication system shall be provided between the main steering station and the engine room on vessels which are not equipped with pilothouse controls. In the opinion of the Officer in Charge, Marine Inspection, such a system is necessary for proper operation of the vessel.

Subpart 184.40—Work Vests

40-1 Approved unicellular plastic foam work vests.

Buoyant work vests carried on board the permissive authority of this part shall be of a Coast Guard approved type.

Specifications for approved type vests are in Subpart 160.053 of Chapter Q—Specifications, of this part.

[CGFR 60-54, 25 FR Sept. 25, 1960, as amended by CGFR 67-91, 32 FR 20813, Dec. 27, 1967]

§ 184.40-5 Use.

(a) Approved buoyant work vests are considered to be items of safety apparel and may be carried aboard vessels to be worn by crew members when working near or over the water under favorable working conditions. They shall be used under the supervision and control of a responsible person. When carried, such vests shall not be accepted in lieu of any portion of the required number of approved life preservers and shall not be substituted for the approved life preservers required to be worn during drills and emergencies.

§ 184.40-10 Stowage.

(a) The approved buoyant work vests shall be stowed separately from the regular stowage of approved life preservers.

(b) The locations for the stowage of work vests shall be such as not to be easily confused with that for approved life preservers.

§ 184.40-15 Inspections.

(a) Each work vest shall be subject to examination by a marine inspector to determine its serviceability. If found to be satisfactory, it may be continued in service, but shall not be stamped by a marine inspector with a Coast Guard stamp. If a work vest is found not to be in a serviceable condition, then such work vest shall be removed from the vessel. If a work vest is beyond repair, it shall be destroyed or mutilated in the presence of a marine inspector so as to prevent its continued use as a work vest.

PART 185—OPERATIONS

Subpart 185.01—Application and Intent

Sec.

185.01-1 Application.

185.01-5 Intent.

Subpart 185.05—Penalties

185.05-1 General.

§ 185.01-1

Sec.

Subpart 185.10—Exhibition of License

185.10-1 Officers' licenses.

Subpart 185.12—Stability Letter

185.12-1 Posting.

Subpart 185.15—Notice and Reporting of Casualty and Voyage Records

185.15-1 Notice and reporting of casualty and voyage records.

Subpart 185.17—Reckless or Negligent Operation

185.17-1 Use prohibited by law.

Subpart 185.19—Accident Assistance

185.19-1 Duty of master.

Subpart 185.20—Miscellaneous Operating Requirements

185.20-1 Compliance with provisions of certificate of inspection.

185.20-10 Steering gear tests.

185.20-15 Hatches.

185.20-20 Vessels carrying vehicles.

185.20-25 Fueling of vessels using fuel having a flash point of 110° F., or lower (gasoline, etc.).

185.20-30 Use of auto pilot.

185.20-35 Charts and nautical publications.

Subpart 185.22—Patrolmen

185.22-1 Duties.

Subpart 185.25—Preparations for Emergencies

185.25-1 Emergency instructions.

185.25-5 Recommended emergency check-off lists.

185.25-7 Posting placards containing instructions for launching and inflating inflatable liferafts.

185.25-10 Drills.

185.25-15 Officers' responsibilities.

185.25-20 Tests of emergency position indicating radiobeacon (EPIRB).

Subpart 185.30—Markings Required

185.30-1 Hull markings.

185.30-5 Lifesaving gear.

185.30-10 Life preserver stowage.

185.30-15 Escape hatches and emergency exits.

185.30-20 Fuel shutoff valves.

185.30-25 Watertight doors and watertight hatches.

185.30-30 Emergency position indicating radiobeacon (EPIRB).

46 CFR Ch. I (10-1-90 Edition)

AUTHORITY: 46 U.S.C. 3306, 6101, 8105; 46 CFR 1.46.

SOURCE: CGFR 60-54, 25 FR 9347, Sept. 29, 1960, unless otherwise noted.

Subpart 185.01—Application and Intent

§ 185.01-1 Application.

(a) The provisions of this part shall apply to all vessels except as specifically noted in this part.

§ 185.01-5 Intent.

(a) The intent of this part is to insure that all vessels be operated in accordance with applicable laws and regulations and in such a manner as to afford adequate precaution against hazards of an emergency nature which might endanger the vessel and the persons being transported.

Subpart 185.05—Penalties

§ 185.05-1 General.

(a) The marine safety and criminal statutes provide penalties for the violation of the applicable provisions of this subchapter, which penalties, depending upon the gravity of the violation, are as follows:

(1) Assessment and collections of civil monetary penalty.

(2) Criminal prosecution where no loss of life results.

(3) Criminal prosecution for manslaughter where loss of life results from violation of statute or regulation, or from misconduct, negligence, or inattention to duty.

(4) Libel against vessel.

(b) In addition to the foregoing, any licensed or certificated personnel committing an act of misbehavior, negligence, unskillfulness, endangering life, willful violation of marine safety statutes or regulations or requirements thereunder, and incompetency shall be subject to proceedings under the provisions of R.S. 4450, as amended (46 U.S.C. 239), and regulations thereunder (Part 137 of this chapter) with respect to suspension or revocation of license or certificate.

Guard, DOT

§ 185.20-15

60-54, 25 FR 9347, Sept. 29, 1960, as amended by CGFR 65-9, 30 FR 11495, Sept. 1965.

[CGD 81-059, 52 FR 38657, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989]

Part 185.10—Exhibition of License

185.10-1 Officers' licenses.

Licensed individuals employed on any vessel subject to the provisions of this subchapter shall have licenses in their possession and available for examination at all times the vessel is operated.

[CGD 81-059, 52 FR 38657, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989]

Subpart 185.12—Stability Letter

185.12-1 Posting.

If a stability letter is issued in accordance with the requirements in § 185.20 of this chapter, it must be kept under glass or other suitable transparent material in the pilothouse of the vessel.

If posting is impracticable, the stability letter must be kept on board in the custody of the licensed operator.

[CGD 81-023, 48 FR 51052, Nov. 4, 1983]

Part 185.15—Notice and Reporting of Casualty and Voyage Records

185.15-1 Notice and reporting of casualty and voyage records.

The requirements for providing notice and reporting of marine casualties and for retaining voyage records contained in Part 4 of this chapter.

[CGD 84-099, 52 FR 47536, Dec. 14, 1987]

Subpart 185.17—Reckless or Negligent Operation

185.17-1 Use prohibited by law.

No person may use a vessel subject to the provisions of this subchapter in a reckless or negligent manner so as to endanger life, limb, or property of any person. Violations of this subpart constitute use which is grossly negligent, and the violator, in addition to any penalties, to the criminal penalties prescribed in 46 U.S.C. 2302.

Subpart 185.19—Accident Assistance

§ 185.19-1 Duty of master.

The master of a vessel involved in a collision, accident or other casualty, to the extent possible without serious danger to his or her own vessel or persons aboard, shall render all practicable and necessary assistance to persons affected by the collision, accident, or casualty. The master shall also give his or her name, address, and the identification of his or her vessel to any person injured and to the owner of any property damaged.

[CGD 81-059, 52 FR 38657, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989]

Subpart 185.20—Miscellaneous Operating Requirements

§ 185.20-1 Compliance with provisions of certificate of inspection.

The master of the vessel must ensure that all of the provisions of the certificate of inspection are strictly adhered to; however, the master may divert from the route prescribed in the certificate of inspection or take such other steps as deemed necessary and prudent to assist vessels in distress or for other similar emergencies.

[CGD 81-059, 52 FR 38657, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989]

§ 185.20-10 Steering gear tests.

The master or mate of every vessel, before getting underway for a day's operation, shall test the steering gear, signaling whistle, controls and communication system.

[CGD 81-059, 52 FR 38657, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989]

§ 185.20-15 Hatches.

It shall be the duty of the master of any vessel to assure that all exposed hatches are properly secured before getting underway for a voyage on other than protected waters.

[CGD 81-059, 52 FR 38657, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989]

§ 185.20-20

§ 185.20-20 Vessels carrying vehicles.

(a) Automobiles or other vehicles shall be stowed in such a manner as to permit their occupants to get out and away from them freely in the event of fire or other disaster. The decks, where necessary, shall be distinctly marked with painted lines to indicate the vehicle runways and the aisle spaces.

(b) The master shall take any necessary precautions to see that automobiles or other vehicles have their motors turned off and their emergency brakes set when the vessel is underway, and that the motors are not started until the vessel is secured to the landing. In addition, the vehicles at each end shall have their wheels securely blocked, while the vessel is being navigated.

(c) The master shall have appropriate "NO SMOKING" signs posted and shall take all necessary precautions to prevent smoking or carrying of lighted or smoldering cigars, cigarettes, etc., in the deck area assigned to automobiles or other vehicles.

[CGD 81-059, 52 FR 38657, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989]

§ 185.20-25 Fueling of vessels using fuel having a flash point of 110° F., or lower (gasoline, etc.).

(a) Vessels using fuel having a flash point of 110° F., or lower, shall not take on fuel when passengers are on board.

§ 185.20-30 Use of auto pilot.

Except as provided in 33 CFR 164.15, when the automatic pilot is used in—

(a) Areas of high traffic density;
(b) Conditions of restricted visibility; and

(c) All other hazardous navigational situations, the master shall ensure that:

(1) It is possible to immediately establish manual control of the ship's steering;

(2) A competent person is ready at all times to take over steering control; and

(3) The changeover from automatic to manual steering and vice versa is made by, or under the supervision of the master or mate.

46 CFR Ch. I (10-1-90 Edition)

[CGD 75-074, 42 FR 5964, Jan. 31, 1977, as amended by CGD 81-059, 52 FR 38657, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989]

§ 185.20-35 Charts and nautical publications.

As appropriate for the intended voyage, all vessels must carry adequate and up-to-date—

(a) Charts;
(b) Sailing directions;
(c) Coast pilots;
(d) Light lists;
(e) Notices to mariners;
(f) Tide tables;
(g) Current tables; and
(h) All other nautical publications necessary.¹

[CGD 75-074, 42 FR 5964, Jan. 31, 1977]

Subpart 185.22—Patrolmen

§ 185.22-1 Duties.

(a) At all times during which bunks in passenger areas located below the main deck are occupied, the master shall designate a member of the vessel's crew as a patrolman.

(b) The patrolman shall be stationed in the vicinity of the cabins or state-rooms and on each deck to guard against and give alarm in case of fire or other danger.

[CGD 81-059, 52 FR 38657, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989]

Subpart 185.25—Preparations for Emergencies

§ 185.25-1 Emergency instructions.

(a) Except as otherwise provided in this section, it shall be the duty of the master of any vessel subject to the regulations in this subchapter to prepare and post emergency checkoff lists in a conspicuous place accessible to crew and passengers.

(b) Except where all or a part of the emergency instructions are deemed unnecessary by the Officer in Charge, Marine Inspection, the emergency checkoff list shall contain not less than the applicable portions of the

¹ For United States vessels in or on the navigable waters of the United States, see 33 CFR 164.33.

Recommended Emergency Checkoff 185.25-5.

When in the judgment of the
ant Officer in Charge, Marine
tion, the operation of any vessel
to this section does not present
hazards listed on the emergency
off list or when any vessel has no
e mounting surface, an exclu-
from the requirements of
5-1 (a) and (b) is granted by

Safety orientation. Before get-
underway, the master of each
subject to this subpart shall
that suitable public announce-
instructive placards or both are
ed in a manner which affords all
gers the opportunity to become
nted with:

Storage location of life preserv-

Proper method of donning and
ing life preservers of the type(s)
d on the vessel;

The type and location of all life-
devices carried on the vessel;

The location and contents of the
gency Checkoff List" required
185.25-5.

10-54, 25 FR 9347, Sept. 29, 1960, as
ed by CGD 78-009, 45 FR 11110, Feb.
9, 45 FR 13736, Mar. 3, 1980; CGD 81-
FR 38658, Oct. 16, 1987, and 54 FR
n. 4, 1989]

185.25-5 Recommended emergency checkoff lists.

**Tough weather at sea or crossing
lous bars.** (1) Close all water-
and weathertight doors, hatches,
ports to prevent taking water

Keep bilges dry to prevent loss of
y due to water in bilges.

Keep passengers seated and
distributed.

Have passengers put on life pre-
if the going becomes very
or you are about to cross a haz-
bar.

Never abandon a vessel (particu-
wooden boat) unless actually
to do so.

If assistance is needed use the
ational Distress call over radio-
me or call the Coast Guard im-
ely.

(7) Prepare life floats for launching.

(b) *Man overboard.* (1) Throw a ring
buoy overboard as close to the person
as possible.

(2) Post a lookout to keep the person
overboard in sight.

(3) Maneuver the vessel to pick up
the person in the water.

(4) Have crew member put on life-
jacket, attach a safety line to him and
have him standby to jump into the
water to assist the person overboard if
necessary.

(5) If person is not immediately lo-
cated notify Coast Guard and other
vessels in vicinity by radiotelephone.

(6) Continue search until released by
Coast Guard.

(c) *Fire at sea.* (1) Cut off air supply
to fire—close hatches, ports, doors,
and ventilators, etc.

(2) Immediately use portable fire ex-
tinguishers at base of flames for in-
flammable liquid or grease fires or
water for fires in ordinary combustible
materials.

(3) If fire is in machinery spaces
shut off fuel supply and ventilation
and discharge fixed CO₂ if installed.

(4) Maneuver vessel to minimize
effect of wind on fire.

(5) If unable to control fire, immedi-
ately notify the Coast Guard and
other boats in the vicinity by radiotel-
ephone, etc.

(6) Move passengers away from fire,
have them put on life preservers, and
if necessary, prepare to abandon ship.

§ 185.25-7 Posting placards containing in- structions for launching and inflating inflatable liferafts.

(a) Every vessel equipped with in-
flatable liferafts shall have posted in
conspicuous places which are regularly
accessible to the crew and/or passen-
gers, approved placards containing in-
structions for launching and inflating
inflatable liferafts for the information
of persons on board. The number and
location of such placards for a particu-
lar vessel shall be as determined neces-
sary by the Officer in Charge, Marine
Inspection.

(b) Under the requirements con-
tained in § 160.051-6(c)(1) of Subpart
160.051 in Subchapter Q (Specifica-
tions) of this chapter, the manufactur-

§ 185.25-10

er of approved inflatable liferafts is required to provide approved placards containing such instructions with each liferaft.

[CGFR 65-9, 30 FR 11495, Sept. 8, 1965]

§ 185.25-10 Drills.

The master shall conduct drills and give instructions as necessary to ensure that all crew members are familiar with their duties.

[CGD 81-059, 52 FR 38658, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989]

§ 185.25-15 Officers' responsibilities.

Nothing in the recommended emergency instructions in this subpart shall exempt any officer from the exercise of good judgment in any emergency situation.

[CGD 81-059, 52 FR 38658, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989]

§ 185.25-20 Tests of emergency position indicating radiobeacon (EPIRB).

The master of the vessel shall ensure that:

(a) The EPIRB required in § 180.40-1 of this subchapter is tested monthly, using the integrated test circuit and output indicator, to determine that it is operative; and,

(b) The EPIRB's battery is replaced after the EPIRB is used and before the date required by FCC regulations in 47 CFR Part 80.

[CGD 81-059, 52 FR 38658, Oct. 16, 1987, and 54 FR 132, Jan. 4, 1989; 54 FR 151, Jan. 4, 1989]

Subpart 185.30—Markings Required

§ 185.30-1 Hull markings.

Vessels shall be marked as required by Parts 67 and 69 of this chapter.

[CGD 72-104R, 37 FR 14233, July 18, 1972; 37 FR 18537, Sept. 13, 1972]

§ 185.30-5 Lifesaving gear.

(a) Life floats and buoyant apparatus, together with their oars and paddles, shall be conspicuously marked with the vessel's name.

(b) The number of persons allowed on each life float and buoyant apparatus shall be conspicuously marked or

painted thereon in letters and numbers at least 1½ inches high.

(c) All life preservers and ring life buoys shall be marked with the vessel's name.

(d) Any lifeboat, life raft, or other suitable boat accepted as primary lifesaving apparatus shall be marked with its allowed capacity in persons, and with the name of the vessel on which installed, in letters and figures at least 2 inches high, except that inflatable life rafts shall be marked by the manufacturer or service facility as required by Subpart 160.051 of Subchapter Q—Specifications, of this chapter and no additional markings are required.

§ 185.30-10 Life preserver stowage.

(a) Where life preservers are stowed so that they are not readily visible to passengers, the containers in which they are stowed shall be marked "Life Preservers" and with the number contained therein, in at least 1-inch letters and figures. This legend shall indicate the separate stowage of children's life preservers.

§ 185.30-15 Escape hatches and emergency exits.

(a) All escape hatches and other emergency exits shall be marked on both sides using at least 1-inch letters: "Emergency Exit, Keep Clear", unless such markings are deemed unnecessary by the Officer in Charge, Marine Inspection.

§ 185.30-20 Fuel shutoff valves.

(a) Remote fuel shutoff stations shall be marked in at least 1-inch letters indicating purpose of the valve and direction of operation.

§ 185.30-25 Watertight doors and watertight hatches.

(a) Watertight doors and watertight hatches shall be marked on both sides in at least 1-inch letters: "Watertight Door—Close in Emergency" or "Watertight Hatch—Close in Emergency", unless such markings are deemed unnecessary by the Officer in Charge, Marine Inspection.

Guard, DOT

§ 185.30-30

0-30 Emergency position indicating
diobeacon (EPIRB).

[CGD 73-24R, 39 FR 10140, Mar. 18, 1974]

EPIRB required in § 180.40-1 of
ubchapter must be marked with
essel's name.

PARTS 186—187 [RESERVED]

INDEX

CHAPTER T—SMALL PASSENGER VESSELS (UNDER 100 GROSS TONS)

A

	<i>Section</i>
Accessories (less than 50 volts).....	183.05-35
Accommodations, crew and passenger.....	Subparts 177.25, 177.30
Alterations and repairs.....	Subpart 176.20
American Boat and Yacht Council, Inc. (ABYC).....	175.27-5
Appeals, right of.....	Subparts 175.30, 187.05-35
Applicability of regulations.....	175.05-1, 175.05-3
Approved, definition.....	175.10-1
Approved type, definition.....	175.10-2
Authority.....	Subpart 175.01
Co pilot.....	185.20-30
Emergency machinery.....	Subpart 182.10
Emergency steering apparatus.....	182.30-5

B

Boat systems.....	182.25-15
Batteries (less than 50 volts).....	183.05-20
Bow piping system.....	182.25-5
Bow pumps.....	182.25-10
Bow, auxiliary; installation.....	182.10-5
Bow, inspection.....	176.25-30
Bowhead, collision.....	Subpart 178.15
Bowhead deck, definition.....	178.05-1
Bowheads, watertight:	
Construction, general.....	178.25-1
Hatches and coamings.....	Subpart 178.35
Hull penetrations and shell connections.....	Subpart 178.40
Installation.....	Subpart 178.20
Open boats.....	178.30-7
Requirements.....	Subpart 178.10
Vent apparatus.....	Subpart 180.10
Vent apparatus equipment for.....	Subpart 180.15

C

Carbon dioxide extinguishing system:	
Amount of CO ₂ gas required.....	181.20-10
Closing of openings.....	181.20-35
Controls.....	181.20-15
Cylinders.....	181.20-30
Discharge outlets.....	181.20-25
Filling.....	181.20-20
Where required.....	181.20-1
Fire extinguishers.....	182.15-7
Age of passengers for hire, definition.....	175.10-28
Notice of.....	Subpart 185.15
Certificate of inspection:	

Amendment.....	176.01-
Application for.....	176.01-
Compliance with provisions of.....	185.20
Description.....	176.01
How to obtain or renew.....	176.01-
Passengers permitted.....	176.01-
Period of validity.....	176.01-
Permit to carry excursion party.....	176.01-
Permit to proceed to another port for repairs.....	176.01-
Posting.....	176.01-
Renewal.....	176.01-
Routes permitted.....	176.01-
When required—L.....	176.01-
When required—S.....	176.01-
Certificates, International Convention for Safety of Life at Sea, 1960:	
Duration.....	176.35-
Exemption Certificate.....	176.35-
Passenger Ship Safety Certificate.....	176.35-
Posting.....	176.35-
Charts.....	185.20-
Circuit breakers (less than 50 volts).....	183.05-30, 183.10-
Circuit breakers (50 volts or more).....	183.05-30, 183.10-
Classification societies, recognized:	
Adoption of standards.....	175.27-1, 177.10-
Definition.....	175.10-
Coast Guard District Commander, definition.....	175.10-
Coast pilot.....	185.20-
Coastwise, definition.....	175.10-
Cockpit, definition.....	178.05-
Commandant, definition.....	175.10-
Compass.....	Subpart 184.2
Construction and arrangement:	
Alteration of vessel.....	Subpart 179.1
Application.....	177.01-
Collision bulkhead.....	Subpart 178.1
Crew accommodations.....	Subpart 177.2
Deck rails.....	177.35-
Drainage of weather decks.....	Subpart 178.3
Guards in hazardous places.....	177.35-
Hatches and coamings.....	Subpart 178.3
Hull penetrations and shell connections.....	Subpart 178.4
Hull structure.....	Subpart 177.1
Intent.....	177.01-
Means of escape.....	Subpart 177.1
Passenger accommodation.....	Subpart 177.1
Plans.....	Subpart 177.1
Seating.....	177.30-
Storm rails.....	177.35-
Structural standards.....	177.10-
Toilet facilities.....	177.30-
Vehicles, guards, rails, etc., for runways on vessels.....	177.35-
Ventilation for closed places.....	177.20-
Ventilation for crew quarters and passenger spaces.....	177.20-
Watertight bulkheads.....	Subpart 178.1
Controls.....	181.20-
Cooking and heating.....	183.10-45, Subpart 184.2

Index, Parts 175-185

Crew accommodations.....	Subpart 177.25
Current tables.....	185.20-35

D

Definition of terms used:

Approved.....	175.10-1
Approved type.....	175.10-2
Auxiliary sailing vessel.....	175.10-38
Bulkhead deck.....	178.05-1
Coast Guard District Commander.....	175.10-7
Coastwise.....	175.10-3
Cockpit.....	178.05-9
Commandant.....	175.10-5
Exposed waters.....	178.05-15
Ferry.....	175.10-9
Flush deck.....	178.05-7
Great Lakes.....	175.10-11
Headquarters.....	175.10-13
Lakes, bays, and sounds.....	175.10-17
Length.....	175.10-19
Marine inspector or inspector.....	175.10-21
Non-self-propelled vessel.....	175.10-23
Ocean.....	175.10-25
Officer in charge, marine inspection.....	175.10-26
Open boat.....	178.05-13
Partially-protected waters.....	178.05-17
Passenger.....	175.10-27
Pilothouse control.....	175.10-29
Protected waters.....	178.05-19
Recognized classification society.....	175.10-31
Rivers.....	175.10-33
Rules of the Road.....	175.10-35
Sailing vessel.....	175.10-36
Vessel.....	175.10-37
Watertight.....	178.05-3
Weathertight.....	178.05-5
Well deck.....	178.05-11
Diesel engines.....	Subpart 182.20
Distress signals.....	Subpart 180.35
Drainage of weather decks.....	Subpart 178.30
Drills.....	185.25-10
Drydocking or hauling out.....	Subpart 176.15
Notice of.....	176.15-10
Scope of drydock examination.....	176.15-5
When required.....	176.15-1

E

Electrical installation:

Application.....	183.01-1
Intent.....	183.01-5
Special consideration.....	183.01-10
Standards and requirements.....	183.01-15
Electrical installations operating at potentials of 50 volts or more:	
Application.....	183.10-1
Disconnect switches and devices.....	183.10-25

Distribution and circuit loads.....	183.10-30
Equipment protection and enclosures.....	183.10-10
Generators and motors.....	183.10-5
Heating and cooking equipment.....	183.10-45
Main distribution panels.....	183.10-15
Overcurrent protection, general.....	183.10-35
Overcurrent protection for motors and motor branch circuits.....	183.10-40
Shore power.....	183.10-50
Wiring methods and materials.....	183.10-20
Electrical installations operating at potentials of less than 50 volts:	
Accessories.....	183.05-35
Application.....	183.05-1
Batteries.....	183.05-20
Circuit breakers.....	183.05-30
Generators and motors.....	183.05-10
Ignition wiring.....	183.05-40
Nameplates.....	183.05-5
Radio-phone equipment.....	183.05-25
Wiring installation.....	183.05-50
Wiring size, insulation, etc.....	183.05-45
Electrical material inspection.....	176.25-15
Emergency instructions.....	185.25-1
Emergency lighting.....	Subpart 184.30
Emergency preparations.....	185.25-5
Engine room communication system.....	184.35-1
Engines, gasoline.....	Subpart 182.1
Equivalents.....	Subpart 175.15
Escape, means of.....	177.15-1
Exemption certificate.....	176.35-20
Exhaust, gasoline engine.....	182.15-15, 182.15-20
Exhausts, diesel engines.....	182.20-15, 182.20-20
Exposed waters, definition.....	176.05-15

F

Federal Communications Commission requirements.....	184.25-1
Ferries carrying vehicles.....	177.35-10
Ferry, definition.....	175.10-9
Fire axe.....	181.35-1
Fire extinguishers, portable:	
Approved extinguishers.....	181.30-5
Installation and location.....	181.30-10
Required number, type and location.....	181.30-1
Fire extinguishing equipment, material inspection.....	176.25-25
Fire extinguishing equipment—L.....	176.25-27
Fire extinguishing system, fixed:	
Amount of CO ₂ gas required.....	181.20-10
Closure of openings.....	181.20-35
Controls.....	181.20-15
Cylinders.....	181.20-30
Discharge outlets.....	181.20-25
Piping.....	181.20-20
Type required.....	181.20-5
Where required.....	181.20-1
Fire main system:	
Application.....	181.15-1
Fire hydrants and hose.....	181.15-5, 181.15-10

Index, Parts 175-185

Fire pumps, power and hand.....	181.10-1, 181.10-5
Fire protection equipment, general:	
Application and intent.....	181.01-1
Approved type.....	181.05-1
Construction and arrangement.....	177.10-5
Installed but not required.....	181.05-5
Hatch decks, definition.....	178.05-7
Loading operations.....	185.20-25
Tests.....	183.05-35, 183.10-35

G

Gasoline engines.....	Subpart 182.15
Generators and motors (50 volts or more).....	183.10-5
Generators and motors (less than 50 volts).....	183.05-10
Great Lakes, definition.....	175.10-11
Gross tonnage as a criterion for requirements.....	175.05-15
Harbors and rails.....	Subpart 177.35

H

Hatches.....	185.20-15
Hoisting out, drydocking.....	Subpart 176.15
Hazardous materials incidents.....	185.15-3
Hatchways, definition.....	175.10-13
Holding equipment.....	183.10-45, 184.05
Hose, fire.....	181.15-10
Hull inspection.....	176.25-5
Hull structure.....	Subpart 177.10
Hydrants, fire.....	181.15-5
Hydraulic accumulators.....	176.25-30

I

Industrial standards, adoption of.....	175.27, 176.25
Inspection of vessels:	
Assignment of marine inspector.....	175.20-1
Electrical.....	176.25-15
Fire extinguishing equipment—S.....	176.25-25
Full.....	176.25-5
Initial inspection for certification.....	176.05-5
Inspection standards.....	176.25-1
Life-saving equipment—S.....	176.25-20
Limitations of inspection.....	Subpart 176.30
Machinery.....	176.25-10
Miscellaneous systems and equipment.....	176.25-40
Notice of deficiencies and requirements.....	175.20-5
Pressure vessels—S.....	176.25-30
Reinspection.....	Subpart 176.10
Renewal of certificate.....	176.05-10
Repairs and alterations.....	Subpart 176.20
Sanitary inspection.....	176.25-45
Special consideration.....	175.25-1
Standards.....	Subparts 175.27, 176.25
Steering apparatus.....	176.25-35
Unsafe practices.....	176.25-50
International Convention for Safety of Life at Sea, 1960:	
International voyage.....	176.35-5

Vessels subject to requirements.....	176.3
Voyage between continental United States and Hawaii or Alaska or between Hawaii and Alaska.....	176.3

L

Lakes, bays and sounds, definition of.....	175.1
Length, definition of.....	175.1
Length of rail, criteria.....	176.0
License, original; procedures required:	
Application.....	187.1
Character check and references.....	187.1
Experience or training, evidence of.....	187.1
Physical examination.....	187.1
Professional examination.....	187.1
Requirements, general.....	187.1
License renewal procedure:	
Application.....	187.1
Fitness.....	187.1
Period of grace.....	187.1
Physical requirements.....	187.1
Reissue of expired license.....	187.1
Requirements, general.....	187.1
License, required.....	Subpart 18
License, specific requirement for ocean operators:	
Additional routes.....	187.2
Applicability.....	187.2
Citizenship requirement.....	187.2
Examination for operator of:	
Ocean mechanically propelled vessels.....	187.2
Ocean non-self-propelled vessel.....	187.2
Ocean sail propelled vessel.....	187.2
Minimum age.....	187.2
Service requirements:	
Auxiliary sailing vessel.....	187.2
Mechanically propelled vessels.....	187.2
Non-self-propelled vessels.....	187.2
Sail propelled vessels.....	187.2
Vessels' routes.....	187.2
License, specific requirements for operators on other than ocean and coastal waters:	
Applicability.....	187.2
Examination for barge operators.....	187.2
Examination for operators of mechanically propelled vessels.....	187.2
Examination for sailboat operators.....	187.2
Experience required.....	187.2
Minimum age.....	187.2
Licensing:	
Applicability of regulations.....	187.0
English language requirement.....	187.0
General requirements.....	Subpart 18
Issuance of duplicate licenses.....	187.0
Issuance of licenses.....	187.0
Lifting of limitations.....	187.0
Oath requirement.....	187.0
Parting with license.....	187.0
Re-examinations and refusal of licenses.....	187.0

Index, Parts 175-185

Right of appeal.....	187.05-35
Sea service as member of Armed Forces of the United States and on vessels owned by the United States as qualifying experience.....	187.05-5
Suspension and revocation of license.....	187.05-30
Life preservers.....	Subpart 180.25
Life preservers, children.....	180.25-5
Lifboats.....	Subpart 180.10
Lifboats, equipment for.....	Subpart 180.15
Lifeline.....	180.15-5
Liferafts.....	Subpart 180.10
Lifesaving equipment:	
Application.....	180.01-1
Approved.....	180.05-1
Buoyant apparatus.....	180.10-1, 180.15-1
For vessels in Great Lakes service.....	180.10-15
For vessels in lakes, bays, and sounds service.....	180.10-20
For vessels in ocean or coastwise service.....	180.10-5
For vessels in river service.....	180.10-25
Inspection of.....	176.25-22
Installed but not required.....	180.05-5, 181.05-5
Intent.....	180.01-5
Life preservers, number required.....	180.25-5
Life preservers, type required.....	180.25-1
Lifboats.....	180.10-1, 180.15-1
Marking.....	180.20-5, 180.25-15
Pyrotechnic distress signals.....	Subpart 180.35
Ring life buoys and water lights.....	Subpart 180.30
Stowage of equipment.....	180.15-10
Stowage of lifesaving appliances.....	180.25-10, 180.20-1
Substitutions.....	180.10-30
Light intensity standards.....	184.15-5
Light lists.....	185.20-35
Light screens.....	184.15-10
Lighting, emergency.....	Subpart 184.30
Load lines.....	Subpart 175.07
Lounge arrangements.....	177.30-7

M

Machinery, material inspection.....	176.25-10
Machinery installation:	
Application.....	182.01-1
Auxiliary machinery.....	Subpart 182.10
Machinery using diesel fuel:	
Application.....	182.20-1
Cooling.....	182.20-10
Exhaust cooling.....	182.20-15
Exhaust pipe installation.....	182.20-20
Fuel tanks, independent.....	182.20-25
General requirements.....	182.20-5
Pipes, filling and sounding.....	182.20-30
Pipes, vent.....	182.20-35
Piping fuel supply.....	182.20-40
Ventilation of compartments.....	182.20-45
Machinery using gasoline as fuel:	
Application.....	182.15-1
Carburetors.....	182.15-7

Cooling.....	182.15-10
Exhaust cooling.....	182.15-15
Exhaust pipe installation.....	182.15-20
Fuel tanks.....	182.15-25
General requirements.....	182.15-5
Pipes, filling and sounding.....	182.15-30
Pipes, vent.....	182.15-35
Piping fuel supply.....	182.15-40
Ventilation of compartments.....	182.15-45
Propulsion machinery.....	Subpart 182.05
Manning:	
Application.....	186.01-1
General.....	Subpart 186.05
Licenses, required.....	186.10-1
Marine inspector or inspector, definition.....	175.10-21
Marking required:	
Escape hatches and emergency exits.....	185.30-15
Fuel shutoff valves.....	185.30-20
Hull markings.....	185.30-1
Lifesaving gear.....	185.30-5, 185.30-10
Watertight doors and watertight hatches.....	185.30-25
Mooring equipment.....	Subpart 184.10
Motors and generators (50 volts or more).....	183.10-5
Motors and generators (less than 50 volts).....	183.05-10

N

Nameplates, electrical equipment.....	183.05-5
Nautical publications.....	185.20-35
Navigation lights and shapes.....	Subpart 184.15
Non-self-propelled vessel, definition.....	175.10-23
Notice of casualty.....	Subpart 185.15
Notice and reports of certain hazardous materials incidents.....	185
Notices to mariners.....	185.20-35

O

Ocean, definition of.....	175.10-25
Officer in charge, marine inspection, definition of.....	175.10-20
Open boat, definition.....	178.05-13

P

Paddles.....	Subpart 180.15
Painter.....	Subpart 180.15
Partially protected waters, definition.....	178.05-17
Passenger, definition.....	175.10-27
Passenger accommodations.....	Subpart 177.30
Passenger Ship Safety Certificate.....	176.35-15
Passengers, number permitted.....	176.01-25
Patrolmen, duties of.....	185.22-1
Penalties.....	Subpart 185.05
Permit to proceed to another port for repair—L.....	176.01-27
Pilothouse control, definition.....	175.10-29
Piping:	
Bilge.....	182.25-5
Diesel engine cooling.....	182.20-10, 182.20-15
Diesel engine exhaust installation.....	182.20-20

diesel fuel supply.....	182.20-40
illing and sounding pipes for diesel fuel tanks.....	182.20-30
illing and sounding pipes for gasoline fuel tanks.....	182.15-30
ixed fire extinguishing system.....	181.20-20
asoline engine exhaust installation.....	182.15-20
asoline fuel supply.....	182.15-40
ent pipes for diesel fuel tanks.....	182.20-35
ent pipes for gasoline fuel tanks.....	182.15-35
ng materials, nonmetallic.....	Subpart 182.40
eneral.....	182.40-1
on-vital systems.....	182.40-10
tal systems.....	182.40-5
s, submission for approval.....	Subpart 177.05
ing:	
ertificate of inspection.....	176.01-40
onvention certificates.....	176.35-25
acards containing instructions for launching and inflating inflata-	
ble liferafts.....	185.25-7
asure vessels—L.....	176.25-32
asure vessels—S.....	176.25-30
ulsion machinery.....	Subpart 182.05
ected waters, definition.....	178.05-19
aps:	
ige.....	182.25-10
re, hand.....	181.10-5
re, power.....	181.10-1
otechnic distress signals.....	Subpart 180.35

R

to.....	Subpart 184.25
lophone equipment (less than 50 volts).....	183.05-25
ts.....	Subpart 180.10
s and guards.....	Subpart 177.35
nspection.....	Subpart 176.10
airs and alterations.....	Subpart 176.20
orts and Notice of certain hazardous materials incidents.....	185.15-3
cue boat—L.....	180.10-35
ht of appeal.....	175.30-1, 187.05-35
g life buoys.....	Subpart 180.30
ers, definition.....	175.10-33
es of the Road.....	185.20-5
es of the Road, definition.....	175.10-35

S

ing directions.....	185.20-35
ing vessel, definition.....	175.10-36
itary inspection.....	176.25-45
ting, fixed.....	176.01-25, 177.30-1
re power (50 volts or more).....	183.10-50
inking system, manual.....	Subpart 181.25
bility:	
iteration of vessel.....	Subpart 179.15
pplication, general.....	179.01-1
rocedure for "S" vessels carrying more than 150 passengers and all	
"L" vessels—S and L.....	179.10-5

Procedure for "S" vessels carrying not more than 150 passengers—S.....	179.10-1
Stability letter, posting of.....	Subpart 179.20
Test, procedure.....	Subpart 179.10
Test, when required.....	179.05-1
Standards, industrial; adoption of.....	Subparts 175.27, 176.23
Steering apparatus.....	176.25-35, Subpart 182.30
Steering gear tests.....	185.20-10
Structural standards.....	177.10-1
Switchboards (less than 50 volts).....	183.05-15

T

Tank fuel:	
Diesel.....	182.20-22, 182.20-25
Gasoline.....	182.15-25
Tide tables.....	185.20-35
Toilet facilities.....	177.30-5
Tubular heat exchanges.....	176.25-30

U

Unfired pressure vessels—S.....	176.25-30
Unsafe practices.....	176.25-50

V

Vehicles, vessels carrying.....	177.35-10, 185.20-20
Ventilation:	
Compartments containing diesel fuel tanks.....	182.20-50
Compartments containing diesel machinery.....	182.20-45
Compartments containing gasoline machinery or fuel tanks.....	182.15-45
Spaces other than machinery spaces.....	Subpart 177.20
Vessel, definition.....	175.10-37

W

Water lights.....	180.15-5, Subpart 180.30
Watertight, definition.....	178.05-1
Watertight, integrity, subdivision application.....	178.01-1
Watertight bulkheads required.....	Subpart 178.10
Weathertight, definition.....	178.05-5
Well deck, definition.....	178.05-11
Wiring, size, insulation, etc.:	
Ignition wiring (less than 50 volts).....	183.05-40
Lighting and power wiring (less than 50 volts).....	183.05-45
Wiring installation:	
Conductors.....	183.05-50
Grounding.....	183.05-50
Lighting and power (less than 50 volts).....	183.05-50
Methods and material (50 volts or more).....	183.10-20
Wiring joints and splices.....	183.05-50
Work vests.....	Subpart 184.40

Y

Yacht Safety Bureau (YSB).....	175.27-20
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SUBCHAPTER U—OCEANOGRAPHIC RESEARCH VESSELS

PART 188—GENERAL PROVISIONS

Subpart 188.01—Authority and Purpose

- 188.01-1 Purpose of regulations.
- 188.01-3 Scope of regulations.
- 188.01-5 Assignment of functions.
- 188.01-7 Right of appeal.
- 188.01-15 OMB control numbers assigned pursuant to the Paperwork Reduction Act.

Subpart 188.05—Application

- 188.05-1 Vessels subject to requirements of this subchapter.
- 188.05-2 Exemptions from inspection laws for oceanographic research vessels and terms and conditions which apply in lieu thereof.
- 188.05-3 New vessels and existing vessels for the purpose of application of regulations in this subchapter.
- 188.05-5 Specific application noted in text.
- 188.05-7 Ocean or unlimited coastwise vessels on inland and Great Lakes routes.
- 188.05-10 Application to vessels on an international voyage.
- 188.05-15 Application to vessels concerning nuclear energy.
- 188.05-30 Portable tanks—interpretive rulings.
- 188.05-33 Scientific personnel—interpretive rulings.
- 188.05-35 Load lines—interpretive ruling.

Subpart 188.10—Definitions of Terms Used in This Subchapter

- 188.10-1 Approved.
- 188.10-3 Approved container.
- 188.10-5 Barge.
- 188.10-6 Captain of the Port.
- 188.10-7 Chemical stores.
- 188.10-9 Chemical storeroom.
- 188.10-11 Chemistry laboratory.
- 188.10-13 Coast Guard District Commander.
- 188.10-15 Coastwise.
- 188.10-17 Combustible liquid.
- 188.10-19 Commandant.
- 188.10-21 Compressed gas.
- 188.10-23 Corrosive liquids.
- 188.10-25 Explosive.
- 188.10-27 Flammable liquid.
- 188.10-31 Great Lakes.
- 188.10-33 Headquarters.
- 188.10-35 International voyage.
- 188.10-37 Label.
- 188.10-39 Lakes, bays, and sounds.
- 188.10-41 Liquefied compressed gas.

Sec.

- 188.10-43 Liquefied flammable gas.
- 188.10-45 Marine inspector or inspector.
- 188.10-47 Nuclear energy, radioactive material, and nuclear vessel.
- 188.10-49 Numbered vessel.
- 188.10-51 Ocean.
- 188.10-52 Oceanographic research.
- 188.10-53 Oceanographic vessel.
- 188.10-55 Officer in Charge, Marine Inspection.
- 188.10-56 Pilot boarding equipment and point of access.
- 188.10-57 Portable tank.
- 188.10-59 Recognized classification society.
- 188.10-61 Rivers.
- 188.10-65 Seagoing barge.
- 188.10-67 Scientific equipment.
- 188.10-69 Scientific laboratory.
- 188.10-71 Scientific personnel.
- 188.10-73 Ships' stores and supplies.
- 188.10-75 Undocumented vessel.
- 188.10-77 Vessel.

Subpart 188.15—Equivalents

- 188.15-1 Conditions under which equivalents may be used.
- 188.15-5 Design of vessels.

Subpart 188.20—General Marine Engineering Requirements

- 188.20-1 Marine engineering details.

Subpart 188.25—General Electrical Engineering Requirements

- 188.25-1 Electrical engineering details.

Subpart 188.35—American Bureau of Shipping's Standards

- 188.35-1 Standards to be used.
- 188.35-5 Where obtainable.

AUTHORITY: 46 U.S.C. 2113, 3306, 5115; 49 U.S.C. App. 1804; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGFR 67-83, 33 FR 1113, Jan. 27, 1968, unless otherwise noted.

Subpart 188.01—Authority and Purpose

§ 188.01-1 Purpose of regulations.

The purpose of the regulations in this subchapter is to set forth uniform minimum requirements for oceanographic research vessels designated in accordance with § 3.10-1 of this title and subject to Coast Guard inspection

requirements. The requirements in this subchapter are prescribed in accordance with the intent of Title 52 of the Revised Statutes and acts amendatory thereof or supplementary thereto which govern inspection and certification of vessels, and provide for oceanographic research vessel exemptions from specific statutory requirements when they are found " * * not necessary in the performance of the mission of the vessel, * * *". In addition, they specify the terms and conditions applicable to such vessels as authorized by section 445 of Title 46, United States Code (Pub. L. 89-99). The regulations are necessary to carry out the provisions of applicable laws governing inspection and certification of oceanographic research vessels and have the force of law.

[CGD 77-081, 46 FR 56204, Nov. 16, 1981]

§ 188.01-3 Scope of regulations.

(a) The regulations in this subchapter contain requirements for materials, design, construction, equipment, life-saving appliances and procedures, fire protection, and fire prevention procedures, inspection and certification, and special operational requirements for oceanographic research vessels, including the handling, use, and control of explosives and other dangerous articles or substances.

(b) The regulations in this subchapter are deemed to be necessary when " * * a vessel * * is being employed exclusively in instruction in oceanography or limnology, or both, or exclusively in oceanographic research * * ." If or when a vessel is not so exclusively employed and engages in any trade or commerce then the provisions of sections 441 through 445 of 46 United States Code (Pub. L. 89-99), are not applicable and such a vessel shall be subject to the applicable provisions of laws and other regulations in this chapter governing such activities.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 77-081, 46 FR 56204, Nov. 16, 1981]

§ 188.01-5 Assignment of functions.

(a) The Department of Transportation Act (Pub. L. 89-670, 80 Stat. 931-

950, 49 U.S.C. 1651-1659), transferred to and vested in the Secretary of Transportation " * * all functions, powers, and duties, relating to the Coast Guard, of the Secretary of the Treasury and of other officers and offices of the Department of the Treasury" (subsection 6(b)(1), 49 U.S.C. 1655(b)). This transfer is subject to certain conditions, modifications, and exceptions as set forth in such act. By a rule in 49 CFR 1.4(a) the Secretary of Transportation delegated to the Commandant, U.S. Coast Guard, authority to exercise certain functions, powers, and duties as set forth in subsections 6(a)(4), 6(b)(1) and 6(g) of such act (49 U.S.C. 1655), subject to conditions, exceptions and modifications as described in 49 CFR Part 1. By a rule in 49 CFR 1.9 the Secretary of Transportation continued in effect actions taken prior to April 1, 1967.

(b) The Commandant, U.S. Coast Guard, in a notice dated March 31, 1967, and effective April 1, 1967 (32 FR 5611), approved the continuation of orders, rules, regulations, policies, procedures, privileges, waivers, and other actions, which had been made, allowed, granted, or issued prior to April 1, 1967, and provided that they shall continue in effect according to their terms until modified, terminated, repealed, superseded, or set aside by appropriate authority.

[CGFR 68-32, 33 FR 5729, Apr. 12, 1968]

§ 188.01-7 Right of appeal.

Any person directly affected by a decision or action taken under this subchapter, by or on behalf of the Coast Guard, may appeal therefrom in accordance with subchapter 1.03 of this chapter.

[CGD 88-033, 54 FR 50382, Dec. 6, 1989]

§ 188.01-15 OMB control numbers assigned pursuant to the Paperwork Reduction Act.

(a) *Purpose.* This section collects and displays the control numbers assigned to information collection and record-keeping requirements in this subchapter by the Office of Management and Budget (OMB) pursuant to the Paperwork Reduction Act of 1980 (44 U.S.C.

3501 et seq.). The Coast Guard intends that this section comply with the requirements of 44 U.S.C. 3507(f), which requires that agencies display a current control number assigned by the Director of the OMB for each approved agency information collection requirement.

(b) *Display.*

46 CFR part or section where identified or described	Current OMB control No.
§ 188.40-3	2115-0554
§ 188.40-5	2115-0554

[CGD 88-072, 53 FR 34298, Sept. 6, 1988]

Subpart 188.05—Application

§ 188.05-1 Vessels subject to requirements of this subchapter.

(a) This subchapter shall be applicable to all U.S.-flag vessels indicated in Column 7 of Table 188.05-1(a) to the extent prescribed by applicable laws and the regulations in this subchapter, except as follows:

- (1) Any foreign vessel.
- (2) Any vessel operating exclusively on inland waters which are not navigable waters of the United States.
- (3) Any vessel while laid up and dismantled and out of commission.
- (4) With the exception of vessels of the U.S. Maritime Administration, any vessel with title vested in the United States and which is used for public purposes.

TABLE 188.05-1(a)

Classes of vessels (including motorboats) examined or inspected under various Coast Guard regulations ¹							
Method of propulsion	Size or other limitations ¹	Vessels inspected and certificated under Subchapter D—Tank Vessels ¹	Vessels inspected and certificated under either Subchapter H—Passenger Vessels ¹ or Subchapter T—Small Passenger Vessels ^{1,2}	Vessels inspected and certificated under Subchapter I—Cargo and Miscellaneous Vessels ^{1,3}	Vessels subject to provisions of Subchapter C—Uninspected Vessels ^{1,4,5,6}	Vessels subject to provisions of Subchapter U—Oceanographic Research Vessels ^{1,7,8,9}	Vessels subject to the provisions of Subchapter B—Cargo Bulk Dangerous Cargoes ¹⁰
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Steam	Vessels not over 65 feet in length.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying more than 6 passengers. ¹	All tugboats and towboats.	All vessels except those covered by columns 3, 4, 5, and 7.	None	All vessels carrying in bulk the cargoes listed in table I of Part 153 and table 4 of Part 154. ¹¹
	Vessels over 65 feet in length.	All vessels carrying combustible or flammable liquid cargo in bulk. ¹	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All vessels of not over 15 gross tons which carry more than 6 passengers. ¹ 3. All other vessels carrying passengers, ¹ except: a. Yachts. b. Documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew.	All vessels except those covered by columns 3 and 4.	None	All vessels engaged in oceanographic research.	Do.

Motor	Vessels not over 15 gross tons.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying more than 6 passengers. ¹	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 49 CFR Parts 171-179.	All vessels except those covered by columns 3, 4, 5, and 7.	None	Do.
	Vessels over 15 gross tons except seagoing motor vessels of 300 gross tons and over.	All vessels carrying combustible or flammable liquid cargo in bulk. ²	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All vessels not over 65 feet in length which carry more than 6 passengers. ³ 3. All other vessels of over 65 feet in length carrying passengers for hire except documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew.	All vessels carrying freight for hire except those covered by columns 3 and 4.	All vessels except those covered by columns 3, 4, 5, and 7.	None	Do.

TABLE 188.05-1(a)—Continued

Method of propulsion	Classes of vessels (including motorboats) examined or inspected under various Coast Guard regulations ¹					
	Size or other limitations ¹	Vessels inspected and certificated under Subchapter D—Tank Vessels ¹	Vessels inspected and certificated under Subchapter H—Passenger Vessels ¹ or Subchapter T—Small Passenger Vessels ¹	Vessels inspected and certificated under Subchapter I—Cargo Vessels ¹ and Miscellaneous Vessels ¹	Vessels subject to provisions of Subchapter U—Uninspected Vessels ¹	Vessels subject to provisions of Subchapter O—Certain Bulk Dangerous Cargo ¹
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
	Seagoing motor vessels of 300 gross tons and over.	All vessels carrying combustible or flammable liquid cargo in bulk. ²	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All other vessels carrying passengers, ³ except: a. Yachts. b. Documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew.	All vessels except those covered by columns 3 and 4, and those engaged in the fishing, oystering, clamming, crabbing, or any other branch of the fishery, kelp, or sponge industry.	All vessels except those covered by columns 3, 4, 5, and 7.	All vessels engaged in oceanographic research.
	Vessels not over 700 gross tons.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying more than 6 passengers. ³	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 49 CFR Parts 171-179.	None	None
Sail	Vessels over 700 gross tons.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying passengers for hire.	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 49 CFR Parts 171-179.	None	Do.

§ 188.05-2

46 CFR Ch. I (10-1-90 Edition)

§ 188.05-2 Exemptions from inspection laws for oceanographic research vessels and terms and conditions which apply in lieu thereof.

(a) The regulations in this subchapter govern vessels employed exclusively as "oceanographic research vessels," as defined in section 441 of 46 U.S. Code, with respect to inspection and certification by the U.S. Coast Guard. Any law in Title 52 of the Revised Statutes regarding inspection and certification which has requirements different from those specified in this subchapter shall be deemed to come within the provisions of section 445 of 46 U.S. Code, and the oceanographic research vessel shall be exempt from its application because it is not necessary in the performance of the mission of the vessel.

(b) The oceanographic research vessel shall comply with 49 CFR Parts 171-179 whenever applicable, except to the extent as specifically provided otherwise in this subchapter.

(c) In order not to inhibit the mission of vessels subject to this subchapter, the Coast Guard will not require plan approval of design nor inspection of scientific equipment except to the extent specifically provided otherwise in this subchapter. However, it is the responsibility of the owner to have incorporated into the design and to maintain such equipment to applicable safety standards.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 77-081, 46 FR 56204, Nov. 16, 1981; CGD 86-033, 53 FR 36026, Sept. 16, 1988]

§ 188.05-3 New vessels and existing vessels for the purpose of application of regulations in this subchapter.

(a) *New vessels.* In this application of the regulations in this subchapter, a new vessel is meant to be one, the construction of which is contracted for on or after March 1, 1968, or the major alteration of a vessel is contracted for on or after March 1, 1968, or the conversion of any vessel not previously inspected and certificated by the Coast Guard which is contracted for on or after March 1, 1968.

(b) *Existing vessels.* In the application of the regulations in this subchapter an existing vessel is meant to

be one which is holding a valid certificate of inspection as an oceanographic research vessel on March 1, 1968.

(c) *Other vessels.* When it is desired to have a vessel, which has been used in trade or for recreational purposes, initially inspected and certificated as an oceanographic research vessel on or after March 1, 1968, such vessel shall be subject to all the requirements governing a vessel contracted for on or after March 1, 1968. However, if such vessel has a current certificate of inspection as a passenger, tank, cargo, or miscellaneous vessel, the Commandant may authorize its inspection and certification under this subchapter as a vessel contracted for prior to March 1, 1968, subject to those requirements necessitated by change in service.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 77-081, 46 FR 56204, Nov. 16, 1981]

§ 188.05-5 Specific application noted in text.

(a) At the beginning of the various parts, subparts, and sections, a more specific application is generally given for the particular portion of the text involved. This application sets forth the types, sizes, or services or vessels to which the text pertains, and in many cases limits the application of the text to vessels contracted for before or after a specific date. As used in this subchapter, the term "vessels contracted for" includes not only the contracting for the construction of a vessel, but also the contracting for a material alteration to a vessel, the contracting for the conversion of a vessel to an oceanographic research vessel, and the changing of area of operation of a vessel if such change increases or modifies the general requirements for the vessel or increases the hazards to which it might be subjected.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 77-081, 46 FR 56204, Nov. 16, 1981]

§ 188.05-7 Ocean or unlimited coastwise vessels on inland and Great Lakes routes.

(a) Vessels inspected and certificated for ocean or unlimited coastwise

routes shall be considered suitable for navigation insofar as the provisions of this subchapter are concerned on any inland routes, including the Great Lakes.

§ 188.05-10 Application to vessels on an international voyage.

(a) Except as provided in paragraphs (b), (c), and (d) of this section, the regulations in this subchapter that apply to a vessel on an "international voyage" apply to a vessel that—

(1) Is mechanically propelled and of at least 500 gross tons; and

(2) Is engaged on a voyage—

(i) From a country to which the International Convention for Safety of Life at Sea, 1974, (SOLAS 74) applies, to a port outside that country or the reverse;

(ii) From any territory, including the Commonwealth of Puerto Rico, all possessions of the United States, and all lands held by the United States under a protectorate or mandate, whose international relations are the responsibility of a contracting SOLAS government, or which is administered by the United Nations, to a port outside that territory or the reverse;

(iii) Between the contiguous states of the United States and the states of Hawaii or Alaska or between the states of Hawaii and Alaska.

(b) The regulations that apply to a vessel on an "international voyage" in this subchapter do not apply to a vessel that—

(1) Solely navigates the Great Lakes and the St. Lawrence River as far east as a straight line drawn from Cap des Rosiers to West Point, Anticosti Island and, on the north side of Anticosti Island, the 63rd Meridian; or

(2) Is numbered in accordance with the Federal Boat Safety Act of 1971 (85 Stat. 213; 46 U.S.C. 1451, et seq.).

(c) The Commandant or his authorized representative may exempt any vessel on an international voyage from the requirements of this subchapter if the vessel—

(1) Makes a single international voyage in exceptional circumstances; and

(2) Meets safety requirements prescribed for the voyage by the Commandant.

(d) The Commandant or his authorized representative may exempt any vessel from the construction or lifesaving requirements of this subchapter if—

(1) The vessel does not proceed more than 20 miles from the nearest land in the course of its voyage; and

(2) The Commandant determines that the conditions of the voyage render the application of the full lifesaving requirements unreasonable or unnecessary.

[CGD 72-131R, 38 FR 29320, Oct. 24, 1973, as amended by CGD 80-123, 45 FR 64586, Sept. 30, 1980; CGD 90-008, 55 FR 30664, July 26, 1990]

§ 188.05-15 Application to vessels concerning nuclear energy.

(a) Pertinent definitions are in § 188.10-47.

(b) Special provisions for "nuclear vessels" are in Part 99 of Subchapter I (Cargo and Miscellaneous Vessels) of this chapter and shall be followed.

(c) The regulations covering the transportation and handling of radioactive materials as cargo are in 49 CFR Parts 171-179.

(d) The regulations covering pressure containing portions of nuclear power systems are in Part 55 of Subchapter F (Marine Engineering) of this chapter. See § 56.04-20 of Subchapter F (Marine Engineering) of this chapter for nuclear piping. See Subpart 61.25 of Subchapter F (Marine Engineering) of this chapter for requirements regarding periodic tests and inspections of nuclear reactor power plants.

[CGFR 68-82, 33 FR 18911, Dec. 18, 1968, as amended by CGD 86-033, 53 FR 36026, Sept. 16, 1988]

§ 188.05-30 Portable tanks—interpretive rulings.

(a) The phrase "drums, barrels, or other packages," as used in R.S. 4417a, as amended (46 U.S.C. 391a), and in R.S. 4472, as amended (46 U.S.C. 170), is interpreted to mean portable tanks having a maximum capacity of 110 U.S. gallons and Department of Trans-

§ 188.05-33

portation specifications cylinders having a water capacity of not more than 1,000 pounds, which are actually loaded and discharged from vessels with their contents intact.

(b) The phrase "inflammable or combustible liquid cargo in bulk" as used in R.S. 4417a, as amended (46 U.S.C. 391a), and in R.S. 4472, as amended (46 U.S.C. 170), is interpreted to include such cargo in portable tanks of a capacity of more than 110 U.S. gallons.

(c) The phrase "liquid cargo" as used in R.S. 4417a, as amended (46 U.S.C. 391a), is interpreted to mean flammable or combustible liquids.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGFR 69-72, 34 FR 17503, Oct. 29, 1969]

§ 188.05-33 Scientific personnel—interpretive rulings.

(a) Scientific personnel on oceanographic research vessels are not considered to be seamen or passengers, but are considered as "persons" when requirements are based on total persons on board.

(b) Scientific personnel on such vessels shall not be required to possess seamen's documents nor shall they be required to sign shipping articles.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 77-081, 46 FR 56204, Nov. 16, 1981]

§ 188.05-35 Load lines—interpretive ruling.

(a) Certificated vessels shall be subject to the applicable provisions of the Load Line Acts, and regulations in Subchapter E (Load Lines) of this chapter.

Subpart 188.10—Definition of Terms Used in This Subchapter

§ 188.10-1 Approved.

This term means approved by the Commandant unless otherwise stated.

§ 188.10-3 Approved container.

This term means a container which is properly labeled, marked and approved by DOT for the commodity which it contains.

46 CFR Ch. I (10-1-90 Edition)

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36026, Sept. 16, 1988]

§ 188.10-5 Barge.

This term means any non-self-propelled vessel.

§ 188.10-6 Captain of the Port.

This term means an officer of the Coast Guard designated as such by the Commandant and who, under the superintendence and direction of the Coast Guard District Commander, gives immediate direction to Coast Guard law enforcement activities within his assigned area. In addition, the District Commander shall be the Captain of the Port with respect to remaining areas in his district not assigned to officers designated by the Commandant as Captain of the Port.

§ 188.10-7 Chemical stores.

This term means those chemicals intended for use in the performance of the vessel's scientific activities and is further defined in § 194.05-3.

§ 188.10-9 Chemical storeroom.

This term refers to any compartment specifically constructed or modified for the stowage of chemical stores and so designated and identified.

§ 188.10-11 Chemistry laboratory.

This term includes any space in which experiments are conducted or chemicals are used for scientific purposes in conjunction with the research mission of the vessel, and is so identified.

§ 188.10-13 Coast Guard District Commander.

This term means an officer of the Coast Guard designated as such by the Commandant to command all Coast Guard activities within his district, which include the inspection, enforcement, and administration of Title 32, Revised Statutes, and acts amendatory thereof or supplemental thereto, and rules and regulations thereunder.

§ 188.10-15 Coastwise.

Under this designation shall be included all vessels normally navigating

the waters of any ocean or the Gulf of Mexico 20 nautical miles or less offshore.

§ 188.10-17 Combustible liquid.

This term includes any liquid whose flashpoint, as determined by an open cup tester, is above 80° F.

§ 188.10-19 Commandant.

This term means the Commandant of the Coast Guard.

§ 188.10-21 Compressed gas.

This term includes any material or mixture having in the container an absolute pressure exceeding 40 p.s.i. at 70° F.; or regardless of the pressure at 70° F., having an absolute pressure exceeding 104 p.s.i. at 130° F.; or any liquid flammable material having a vapor pressure exceeding 40 p.s.i. absolute at 100° F. as determined by the Reid method covered by the American Society for Testing Materials Method of Test for Vapor Pressure of Petroleum Products (D-323). Compressed gases are discussed in more detail in 49 CFR Parts 171-179.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36026, Sept. 16, 1988]

§ 188.10-23 Corrosive liquids.

(a) This term includes those acids, alkaline caustic liquids, and other corrosive liquids which, when in contact with living tissues, will cause severe damage of such tissues, by chemical action; or in case of leakage, will materially damage or destroy other freight by chemical action, or are liable to cause fire when in contact with organic matter or with certain chemicals.

(b) A corrosive substance may be:

- (1) Solid, such as iodine; or,
- (2) Liquid, such as acids, or caustic soda solution; or,
- (3) Gaseous, such as chlorine or sulfur dioxide.

§ 188.10-25 Explosive.

This term means a chemical compound or mixture, the primary purpose of which is to function by explosion; i.e., with substantially instantaneous release of gas and heat. Explosives are discussed in more detail in 49

CFR Parts 171-179.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36026, Sept. 16, 1988]

§ 188.10-27 Flammable liquid.

This term includes any liquid whose flashpoint, as determined by an open cup tester, is 80° F. or below.

§ 188.10-31 Great Lakes.

Under this designation shall be included all vessels navigating the Great Lakes.

§ 188.10-33 Headquarters.

This term means the Office of the Commandant, U.S. Coast Guard, Washington, DC 20593-0001.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 88-070, 53 FR 34538, Sept. 7, 1988]

§ 188.10-35 International voyage.

(a) This section describes those voyages which are considered to be "international voyages" for the purposes of this subchapter.

(b) Except as provided in paragraph (c) of this section, the term "international voyage" as used in this subchapter shall have the same meaning as that contained in Regulation 2(d), Chapter I of the International Convention for Safety of Life at Sea, 1974, i.e., *International voyage* means a voyage from a country to which the present convention applies to a port outside such country, or conversely."

(c) The International Convention for Safety of Life at Sea, 1974, does not apply to vessels "solely navigating the Great Lakes of North America and the River St. Lawrence as far east as a straight line drawn from Cap de Rosiers to West Point, Anticosti Island and, on the north side of Anticosti Island, the 63d Meridian." Accordingly, such vessels shall not be considered as being on an "international voyage" for the purpose of this subchapter.

(d) In addition, although voyages between the continental United States and Hawaii or Alaska, and voyages between Hawaii and Alaska are not "international voyages" under the provisions of the International Conven-

§ 188.10-37

tion for Safety of Life at Sea, 1974, such voyages are similar in nature and shall be considered as "international voyages" for the purposes of this subchapter.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 80-123, 45 FR 64586, Sept. 30, 1980; CDG 90-008, 55 FR 30664, July 26, 1990]

§ 188.10-37 Label.

This term means the label required by 49 CFR Part 172 to be affixed to containers of explosives or other hazardous materials.

[CGD 86-033, 53 FR 36026, Sept. 16, 1988]

§ 188.10-39 Lakes, bays, and sounds.

Under this designation shall be included all vessels navigating the waters of any of the lakes, bays, or sounds, other than the waters of the Great Lakes.

§ 188.10-41 Liquefied compressed gas.

This term means a gas which, under the charged pressure, is partially liquid at a temperature of 70° F.

§ 188.10-43 Liquefied flammable gas.

This term means any flammable gas having a Reid vapor pressure exceeding 40 p.s.i. which has been liquefied.

§ 188.10-45 Marine inspector or inspector.

These terms mean any person from the civilian or military branch of the Coast Guard assigned under the superintendence and direction of an Officer in Charge, Marine Inspection, or any person as may be designated for the performance of duties with respect to the inspection, enforcement, and administration to Title 52, Revised Statutes, and acts amendatory thereof or supplemental thereto, and rules and regulations thereunder.

§ 188.10-47 Nuclear energy, radioactive material, and nuclear vessel.

(a) The term "nuclear energy" means all forms of energy released by nuclear fission or radioactive decay, or by any other form of nuclear transformation.

(b) The term "radioactive material" means any material or combination of

46 CFR Ch. I (10-1-90 Edition)

materials that spontaneously emit ionizing radiation.

(c) The term "nuclear vessel" means any vessel in which power for propulsion, or for any other purpose, is derived from nuclear energy; or a vessel handling or processing substantial amounts of radioactive material other than as cargo.

[CGFR 68-82, 33 FR 18911, Dec. 18, 1968]

§ 188.10-49 Numbered vessel.

This term means a vessel which is numbered under the provisions of the Federal Boat Safety Act of 1971 as amended (46 U.S.C. 1466).

[CGD 77-081, 46 FR 56204, Nov. 16, 1981]

§ 188.10-51 Ocean.

Under this designation shall be included all vessels navigating the waters of any ocean, or the Gulf of Mexico more than 20 nautical miles offshore.

§ 188.10-52 Oceanographic research.

This term includes but is not limited to "such studies pertaining to the sea as seismic, gravity meter and magnetic exploration and other marine geophysical or geological surveys, atmospheric research, and biological research".

§ 188.10-53 Oceanographic research vessel.

"An oceanographic research vessel is a vessel which the U.S. Coast Guard finds is employed exclusively in one or more of the following:

- (a) Oceanographic instruction;
- (b) Limnologic instruction;
- (c) Oceanographic research; or
- (d) Limnologic research."

[CGD 77-081, 46 FR 56204, Nov. 16, 1981]

§ 188.10-55 Officer in Charge, Marine Inspection.

This term means any person from the civilian or military branch of the Coast Guard designated as such by the Commandant and who, under the superintendence and direction of the Coast Guard District Commander, is in charge of an inspection zone for the performance of duties with respect to the inspections, enforcement, and

administration of Title 52, Revised Statutes, and acts amendatory thereof or supplemental thereto, and rules and regulations thereunder.

§ 188.10-56 Pilot boarding equipment and point of access.

(a) "Pilot boarding equipment" means a pilot ladder, accommodation ladder, pilot hoist, or combination of them as required by this subchapter.

(b) "Point of access" means the place on deck of a vessel where a person steps onto or off of pilot boarding equipment.

[CGD 79-032, 49 FR 25455, June 21, 1984]

§ 188.10-57 Portable tank.

This phrase means a container having a capacity greater than 110 gallons, which is independent of the vessel's structure.

§ 188.10-59 Recognized classification society.

This term means the American Bureau of Shipping or other classification society recognized by the Commandant.

§ 188.10-61 Rivers.

Under this designation shall be included all vessels whose navigation is restricted to rivers and/or canals exclusively, and to such other waters as may be so designated by the Coast Guard District Commander.

§ 188.10-65 Seagoing barge.

The phrase "every seagoing barge of one hundred gross tons or over" in subsections 395(a) and 395(b), Title 46 U.S. Code (sec. 10, 35 Stat. 428, as amended), includes every non-self-propelled vessel of 100 gross tons or over, if such vessel will navigate the high seas or ocean. The phrase "non-self-propelled vessel" means a vessel without sufficient means for self-propulsion and is required to be towed.

§ 188.10-67 Scientific equipment.

This term means equipment installed or carried on board an oceanographic research vessel and not normally required for the operation of a vessel or its machinery or for the navigation of the vessel, and which is used

primarily in the gathering of scientific data or samples or in processing, analyzing, preserving, or storing such data or samples.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 77-081, 46 FR 56204, Nov. 16, 1981]

§ 188.10-69 Scientific laboratory.

This term means those spaces on board an oceanographic research vessel used primarily for scientific experimentation or research, and are so identified.

§ 188.10-71 Scientific personnel.

This term means those persons who are aboard an oceanographic research vessel solely for the purpose of engaging in scientific research, or in instructing, or receiving instruction, in oceanography or limnology, and shall not be considered seamen under the provisions of Title 53 of the Revised Statutes and acts amendatory thereof or supplementary thereto.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 77-081, 46 FR 56204, Nov. 16, 1981]

§ 188.10-73 Ships' stores and supplies.

This term means any article or substance which is used on board a vessel subject to the appropriate portions of Part 147 of Subchapter N (Dangerous Cargoes) of this chapter for the upkeep and maintenance of the vessel; or for the safety or comfort of the vessel, its passengers or crew; or for the operation or navigation of the vessel (except fuel for its own machinery).

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36026, Sept. 16, 1988]

§ 188.10-75 Undocumented vessel.

This term means any vessel which is not required to have, and does not have, a valid marine document issued by the U.S. Coast Guard.

§ 188.10-77 Vessel.

Where the word "vessel" is used in this subchapter, it shall be considered to include all inspected and certificated oceanographic research vessels as

§ 188.15-1

listed in Column 7 of Table 188.05-1(a).

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 77-081, 46 FR 56204, Nov. 16, 1981]

Subpart 188.15—Equivalents

§ 188.15-1 Conditions under which equivalents may be used.

(a) Where in this subchapter it is provided that a particular fitting, material, appliance, apparatus, or equipment, or type thereof, shall be fitted or carried in a vessel, or that any particular provision shall be made or arrangement shall be adopted, the Commandant may accept in substitution therefor any other fitting, material, apparatus, or equipment, or type thereof, or any other arrangement: *Provided*, That he shall have been satisfied by suitable trials that the fitting, material, appliance, apparatus, or equipment, or type thereof, or the provision or arrangement is at least as effective as that specified in this subchapter.

(b) In any case where it is shown to the satisfaction of the Commandant that the use of any particular equipment, apparatus, or arrangement not specifically required by law is unreasonable or impracticable, the Commandant may permit the use of alternate equipment, apparatus, or arrangement to such an extent and upon such conditions as will insure, to his satisfaction, a degree of safety consistent with the minimum standards set forth in this subchapter.

§ 188.15-5 Design of vessels.

(a) In order not to inhibit design and application the Commandant may accept vessels of unusual, unique, special, or exotic design, both new and for conversion, after it is shown to his satisfaction that such a vessel is at least as safe as any vessel which meets the standards required by this subchapter.

Subpart 188.20—General Marine Engineering Requirements

§ 188.20-1 Marine engineering details.

(a) The marine engineering details shall be in accordance with Subchap-

46 CFR Ch. I (10-1-90 Edition)

ter F (Marine Engineering) of this chapter.

Subpart 188.25—General Electrical Engineering Requirements

§ 188.25-1 Electrical engineering details.

(a) The electrical engineering details shall be in accordance with Subchapter J (Electrical Engineering) of this chapter.

Subpart 188.35—American Bureau of Shipping's Standards

§ 188.35-1 Standards to be used.

(a) Where in this subchapter item, or method of construction, testing is required to meet the standards established by the American Bureau of Shipping, the current standards in effect at the time of construction of the vessel, or otherwise applicable, shall be used.

(b) The current standards of other recognized classification societies may also be accepted upon approval by the Commandant.

§ 188.35-5 Where obtainable.

(a) The standards established by the American Bureau of Shipping are normally published annually and may be purchased from the American Bureau of Shipping, 45 Elsenhower Drive, Paramus, N.J. 07653-0910.

(b) These standards may also be obtained at the Office of the Commandant (G-MVI), U.S. Coast Guard, Washington, DC 20593-0001, or at the Office of any Coast Guard District Commander or Officer in Charge of Marine Inspection.

[CGFR 67-83, 33 FR 1113, Jan. 27, 1968, as amended by CGD 88-070, 53 FR 34538, Sept. 7, 1988; 53 FR 37570, Sept. 27, 1988; 53 FR 44011, Nov. 1, 1988]

PART 189—INSPECTION AND CERTIFICATION

Subpart 189.01—Certificate of Inspection

Sec.

189.01-1 When required.

189.01-5 Posting.

189.01-10 Period of validity.

Sec.
189.01-15 Temporary certificate.

Subpart 189.05—Permit to Proceed to Another Port for Repair

189.05-1 When issued.
189.05-5 To whom issued.
189.05-10 Conditions of permit.
189.05-15 Posting.

Subpart 189.15—Inspection of Vessels

189.15-1 Standard in inspection of hulls, boilers, and machinery.

Subpart 189.20—Initial Inspection

189.20-1 Prerequisite of certificate of inspection.
189.20-5 When made.
189.20-10 Plans.
189.20-15 Scope of inspection.
189.20-20 Specific tests and inspections.
189.20-25 Chemical and explosive hazards.

Subpart 189.25—Inspection for Certification

189.25-1 Prerequisite of reissuance of certificate of inspection.
189.25-5 When made.
189.25-10 Scope of inspection.
189.25-15 Lifesaving equipment.
189.25-20 Fire-extinguishing equipment.
189.25-25 Hull equipment.
189.25-30 Electrical engineering equipment.
189.25-35 Marine engineering equipment.
189.25-38 Pollution prevention.
189.25-40 Sanitary inspection.
189.25-45 Fire hazards.
189.25-47 Chemical and explosive hazards.
189.25-50 Inspector not limited.

Subpart 189.27—Reinspection

189.27-1 When made.
189.27-5 Scope.
189.27-10 Deficiencies in maintenance.
189.27-15 Inspector not limited.

Subpart 189.30—Inspection After Accident

189.30-1 General or partial survey.

Subpart 189.33—Sanitary Inspections

189.33-1 When made.

Subpart 189.35—Weight Handling Gear

189.35-1 Application.
189.35-3 Intent.
189.35-5 Tests.
189.35-7 Examinations.
189.35-9 Plans.
189.35-11 Special cases.
189.35-13 Master's responsibility.

Sec.

189.35-15 Major installations.
189.35-90 Weight handling gear manufactured prior to March 1, 1968.

Subpart 189.40—Drydocking

189.40-1 Definitions relating to hull examinations.
189.40-3 Drydock examination, underwater survey, and internal structural examination intervals.
189.40-5 Notice and plans required.

Subpart 189.43—Integral Fuel Oil Tank Examinations

189.43-1 When required.

Subpart 189.45—Repairs and Alterations

189.45-1 Notice required.
189.45-5 Inspection required.

Subpart 189.50—Special Operating Requirements

189.50-1 Inspection and testing required when making alterations, repairs, or other such operations involving riveting, welding, burning, or like fire-producing actions.

Subpart 189.55—Plan Approval

189.55-1 General.
189.55-5 Plans and specifications required for new construction.
189.55-10 Plans required for alterations of existing vessels.
189.55-15 Procedure for submittal of plans.
189.55-20 Number of plans required.

Subpart 189.60—Certificates Under International Convention for Safety of Life at Sea, 1974

189.60-1 Application.
189.60-5 Cargo Ship Safety Construction Certificate.
189.60-10 Cargo Ship Safety Equipment Certificate.
189.60-15 Cargo Ship Safety Radiotelegraphy Certificate.
189.60-20 Cargo Ship Safety Radiotelephony Certificate.
189.60-25 Exemption Certificate.
189.60-30 Nuclear Cargo Ship Safety Certificate.
189.60-35 Posting of Convention certificates.
189.60-40 Duration of certificates.
189.60-45 American Bureau of Shipping.

AUTHORITY: 33 U.S.C. 1321(j); 46 U.S.C. 2113, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 11735, 38 FR 21243.

§ 189.01-1

3 CFR, 1971-1975 Comp., p. 793; 49 CFR 1.46.

SOURCE: CGFR 67-83, 33 FR 1118, Jan. 27, 1968, unless otherwise noted.

Subpart 189.01—Certificate of Inspection

§ 189.01-1 When required.

(a) Except as noted in this subpart or Subpart 189.05 of this part, no vessel subject to inspection and certification shall be operated without a valid certificate of inspection.

§ 189.01-5 Posting.

(a) The original certificate of inspection shall, in general, be framed under glass or other transparent material and posted in a conspicuous place where it will be most likely to be observed. On other vessels such as barges, where the framing of the certificate under glass would be impracticable, the original certificate of inspection shall be kept on board to be shown on demand.

§ 189.01-10 Period of validity.

(a) Certificates of inspection will be issued for periods of either 1 or 2 years. For nuclear vessels it shall be for a period of 1 year; see also § 99.10-1 of Subchapter I (Cargo and Miscellaneous Vessels) of this chapter. Application may be made by the master, owner, or agent for inspection and issuance of a new certificate of inspection at any time during the period of validity of the current certificate. For nuclear vessels see Part 99 of Subchapter I (Cargo and Miscellaneous Vessels) of this chapter.

(b) Certificates of inspection may be revoked or suspended by the Coast Guard where such process is authorized by law. This may occur if the vessel does not meet the requirements of law or regulations in this chapter or if there is a failure to maintain the safety requirements requisite to the issuance of a certificate of inspection.

(c)(1) In the case of the following vessels, modification of the period of validity of the certificate of inspection will be permitted as set forth in this paragraph:

(i) Non-self-propelled vessels of 100 gross tons and over proceeding on the

46 CFR Ch. I (10-1-90 Edition)

high seas or ocean for the sole purpose of changing place of employment.

(ii) Non-self-propelled vessels of 100 gross tons and over making rare or infrequent voyages on the high seas or ocean and returning to the port of departure.

(2) The certificate of inspection may be issued for a specific period of time to cover a described situation or for one voyage only but in no case to exceed 2 years. The certificate of inspection will include the conditions under which the vessel must operate. Unless the vessel is in compliance with this subchapter insofar as it applies to seagoing barges of 100 gross tons and over, such vessel shall not carry any person on board while underway, and the certificate of inspection will be endorsed as an unmanned seagoing barge.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGFR 68-82, 33 FR 18911, Dec. 18, 1968]

§ 189.01-15 Temporary certificate.

(a) If necessary to prevent delay of the vessel, a temporary certificate of inspection, Form CG-854, shall be issued pending the issuance and delivery of the regular certificate of inspection. Such temporary certificate shall be carried in the same manner as the regular certificate and shall in all ways be considered the same as the regular certificate of inspection which it represents.

Subpart 189.05—Permit To Proceed to Another Port for Repair

§ 189.05-1 When issued.

(a) The Officer in Charge, Marine Inspection, may issue a permit to proceed to another port for repair, Form CG-948, to a vessel, if in his judgment it can be done with safety, even if the certificate of inspection of the vessel has expired or is about to expire.

§ 189.05-5 To whom issued.

(a) Such permit will only be issued upon the written application of the master, owner, or agent of the vessel.

§ 189.05-10 Conditions of permit.

(a) The permit will state upon its face the conditions under which it is issued.

§ 189.05-15 Posting.

(a) The permit shall be carried in a manner similar to that described in § 189.01-5 for a certificate of inspection.

Subpart 189.15—Inspection of Vessels

§ 189.15-1 Standard in inspection of hulls, boilers, and machinery.

(a) In the inspection of hulls, boilers, and machinery of vessels, the standards established by the American Bureau of Shipping, see Subpart 189.35 of Part 188 of this subchapter, respecting material and construction of hulls, boilers, and machinery, and the certificate of classification referring thereto, except where otherwise provided for by the rules and regulations in this subchapter, Subchapter E (Load Lines), Subchapter F (Marine Engineering), or Subchapter J (Electrical Engineering) of this chapter shall be accepted as standard by the inspectors.

Subpart 189.20—Initial Inspection

§ 189.20-1 Prerequisite of certificate of inspection.

(a) The initial inspection is a prerequisite of the issuance of the original certificate of inspection.

§ 189.20-5 When made.

(a) The initial inspection will only be made upon the written application of the owner or builder of the vessel to the Officer in Charge, Marine Inspection, on Form CG-3752, Application for Inspection of U.S. Vessel, at or nearest the port where the vessel is located.

§ 189.20-10 Plans.

(a) Before application for inspection is made, and before construction is started, the owner or builder shall have plans approved by the Commandant indicating the proposed arrangement and construction of the vessel.

(b) The procedure for submitting plans and the list of plans to be supplied is set forth in Subpart 189.55 of this part.

§ 189.20-15 Scope of inspection.

(a) The initial inspection, which may consist of a series of inspections during the construction of a vessel, shall include a complete inspection of the structure, machinery, and equipment, except scientific equipment which does not affect the safety of the vessel or personnel, but including the outside of the vessel's bottom, and the inside and outside of the boilers and unfired pressure vessels. The inspection shall be such as to insure that the arrangements, materials, and scantlings of the structure, boilers and other pressure vessels and their appurtenances, piping, main and auxiliary machinery, electrical installations, lifesaving appliances, fire detecting and extinguishing equipment, pilot boarding equipment, pollution prevention equipment, and other equipment fully comply with the applicable regulations for such vessel and are in accordance with approved plans, and determine that the vessel is in possession of a valid certificate issued by the Federal Communications Commission, if any. The inspection shall be such as to ensure that the workmanship of all parts of the vessel and its equipment is in all respects satisfactory and that the vessel is provided with lights, means of making sound signals, and distress signals as required by applicable statutes and regulations.

(b) When equipment other than scientific equipment is installed which is not required by the applicable regulations in this subchapter, that equipment shall be inspected and tested as may be required for such equipment by the Officer in Charge, Marine Inspection, to assure safety.

(1) The electrical or pressure connections to the ship's supply shall be designed to marine standards and shall be free of personnel hazards.

(2) Scientific equipment will not be inspected but will be examined for external hazards associated with connection to the vessel, dangerous moving

§ 189.20-20

parts, extremes in temperature and shock.

(c) For nuclear vessels, the inspections required by this section shall be made except insofar as they may be limited by the presence of radiation. In addition, the inspection shall include any special preoperational tests and inspections prescribed by the Atomic Energy Commission in its operating license, by the nuclear plant operating procedures, or by the vessel's Safety Assessment. See Part 99 of Subchapter I (Cargo and Miscellaneous Vessels) of this chapter.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGFR 68-82, 33 FR 18911, Dec. 18, 1968; CGD 71-161R, 37 FR 28263, Dec. 21, 1972; CGD 82-036, 48 FR 654, Jan. 6, 1983; CGD 79-032, 49 FR 25455, June 21, 1984]

§ 189.20-20 Specific tests and inspections.

(a) The applicable tests and inspections as set forth in Subpart 189.25 of this part shall be made at this time. In addition, the following specific tests and inspections shall be made by the marine inspector.

(1) Installation of lifeboats, davits, and winches. See Subpart 192.35 of this subchapter.

(2) Installation of carbon dioxide extinguishing piping. See § 193.15-15 of this subchapter.

(3) Marine engineering equipment and systems. See Subchapter F (Marine Engineering) of this chapter.

(4) Electrical engineering equipment and systems. See Subchapter J (Electrical Engineering) of this chapter.

§ 189.20-25 Chemical and explosive hazards.

(a) If installed, the marine inspector shall examine the laboratories, storerooms, magazines, vans, and chests to insure that hazards are minimized.

Subpart 189.25—Inspection for Certification

§ 189.25-1 Prerequisite of reissuance of certificate of inspection.

(a) An inspection for certification is a prerequisite of the reissuance of a certificate of inspection.

46 CFR Ch. I (10-1-90 Edition)

§ 189.25-5 When made.

(a) The inspection for certification will be made only upon written application of the master, owner, or agent of the vessel on Form CG-3752, Application for Inspection of U.S. Vessel, to the Officer in Charge, Marine Inspection, at or nearest the port where the vessel is located.

§ 189.25-10 Scope of inspection.

(a) The inspection for certification shall include an inspection of the structure, boilers, and other pressure vessels, machinery, and equipment. The inspection shall be such as to insure that the vessel, as regards the structure, boilers, and other pressure vessels and their appurtenances, piping, main and auxiliary machinery, electrical installations, life-saving appliances, fire detecting and extinguishing equipment, pilot boarding equipment, pollution prevention equipment, and other equipment, is in satisfactory condition and fit for the service for which it is intended, and that it complies with the applicable regulations for such vessel, and determine that the vessel is in possession of a valid certificate issued by the Federal Communications Commission, if required. The lights, means of making sound signals, and distress signals carried by the vessel shall also be subject to the above-mentioned inspection for the purpose of ensuring that they comply with the requirements of the applicable statutes and regulations.

(b) For nuclear vessels, the inspections required by this section shall be made except insofar as they may be limited by the presence of radiation. See also Subpart 99.10 of Subchapter I (Cargo and Miscellaneous Vessels) of this chapter.

(c) When equipment other than scientific equipment is installed which is not required by the applicable regulations in this subchapter, that equipment shall be inspected and tested as may be required for such equipment by the Officer in Charge, Marine Inspection, to assure safety.

(1) Scientific equipment and their electrical or pressure connection to the ship's supply and laboratories may

be checked to ascertain that they are maintained free of hazards.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGFR 68-82, 33 FR 18911, Dec. 18, 1968; CGD 71-161R, 37 FR 28263, Dec. 21, 1972; CGD 82-036, 48 FR 655, Jan. 6, 1983; CGD 79-032, 49 FR 25455, June 21, 1984]

§ 189.25-15 Lifesaving equipment.

(a) At each inspection for certification, except as modified in paragraph (a)(2) of this section, the marine inspector shall conduct the following tests and inspections of lifesaving equipment:

(1) It shall be demonstrated that the air tanks of all lifesaving appliances are airtight.

(2) Each lifeboat shall be lowered to near the water and then be loaded with its allowed capacity, evenly distributed throughout the length, and then be lowered into the water until it is afloat, and be released from the falls. In making this test persons or deadweight may be used. The total weight used shall be at least equal to the allowed capacity of the lifeboat considering persons to weigh 165 pounds each. This test shall be made at least once in each 2-year period. If practicable it shall be made at the inspection for certification or at a reinspection.

(3) Each life preserver shall be examined to determine its serviceability. If found to be satisfactory, it will be stamped "Passed," together with the date, the port, and the inspector's initials. If not in a serviceable condition, the life preserver shall be removed from the vessel, and if beyond repair, shall be destroyed in the presence of the inspector.

(4) All lifeboat winch electrical control apparatus shall be opened up and inspected.

(5) Where gravity davits are installed, it shall be demonstrated that the lifeboat can be swung out and lowered from any stopped position by merely releasing the brake on the lifeboat winch. The use of force to start the davits or the lifeboat winch will not be permitted.

(6) Inflatable liferafts shall be serviced at an approved servicing facility in accordance with the provisions of

Subpart 160.051 of Subchapter Q (Specifications) of this chapter. Inflatable liferafts shall be serviced at an approved servicing facility every 12 months or not later than the next vessel inspection for certification provided the total time since date of last servicing does not exceed 15 months. The period for servicing is computed from the date of last servicing. Except in emergencies no servicing should be done aboard vessels. If at any time external damage is found to the container or straps or if the seal is broken, the Officer in Charge, Marine Inspection, shall be notified and the raft may be required to be serviced by an approved servicing facility.

NOTE: After the raft has been satisfactorily serviced in the presence of a marine inspector at an approved servicing facility, the raft is repacked and sealed and the carrying case stamped "PASSED" together with the date, port, and the marine inspector's initials.

(7) All other items of lifesaving equipment shall be examined to determine that they are in suitable condition.

(8) A hydraulic release used in the installation of any liferaft, inflatable liferaft, lifeboat, or buoyant apparatus shall undergo the periodic servicing and testing required by Subpart 160.062 of Subchapter Q (Specifications) of this chapter every 12 months which may be extended to 15 months as determined by the date shown on its inspection tag. The springs of a spring-tensioned gripe used in such an installation shall be renewed when the accompanying hydraulic release is serviced and tested.

(b) At each inspection for certification, and more often if necessary, a marine inspector inspects each exposure suit on a vessel to determine its serviceability. Each exposure suit found not to be in a serviceable condition must be removed from the vessel.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGFR 68-32, 33 FR 5729, Apr. 12, 1968; CGD 76-033a, 45 FR 24487, Apr. 10, 1980]

§ 189.25-20 Fire-extinguishing equipment.

(a) At each inspection for certification and at such other times as consid-

§ 189.25-25

ered necessary the inspector shall determine that all fire-extinguishing equipment is in suitable condition and he may require such tests as are considered necessary to determine the condition of the equipment. The inspector shall determine if the tests and inspections required by § 196.15-60 of this subchapter have been conducted. At each inspection for certification the inspector shall conduct the following tests and inspections of fire-extinguishing equipment:

(1) All hand portable fire extinguishers and semiportable fire-extinguishing systems shall be checked as noted in Table 189.25-20(a)(1). In addition, the hand portable fire-extinguishers and semiportable fire-extinguishing systems shall be examined for excessive corrosion and general condition.

TABLE 189.25-20(a)(1)

Type unit	Test
Soda acid.....	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge.
Foam.....	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge.
Pump tank (water or antifreeze).	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge with clean water or antifreeze.
Cartridge operated (water, antifreeze, or loaded stream).	Examine pressure cartridge and replace if and is punctured or if cartridge is otherwise determined to have leaked or to be in unsuitable condition. Remove liquid. Clean hose and inside of extinguisher thoroughly. Recharge with water, solution, or antifreeze. Insert charged cartridge.
Carbon dioxide.....	Weigh cylinders. Recharge if weight loss exceeds 10 percent of weight of charge. Inspect hose and nozzle to be sure they are clear. ¹
Dry chemical (cartridge-operated type).	Examine pressure cartridge and replace if and is punctured or if cartridge is otherwise determined to have leaked or to be in unsuitable condition. Inspect hose and nozzle to see they are clear. Insert charged cartridge. Be sure dry chemical is free-flowing (not caked) and chamber contains full charge.
Dry chemical (stored pressure type).	See that pressure gage is in operating range. If not, or if seal is broken, weigh or otherwise determine that full charge of dry chemical is in extinguisher. Recharge if pressure is low or if dry chemical is needed.
Vaporizing liquid ²	

¹ Cylinders must be tested and marked and all flexible connections and discharge hoses of semiportable carbon dioxide and halon extinguishers must be tested or renewed as required in §§ 147.60 and 147.65 of this chapter.

46 CFR Ch. I (10-1-90 Edition)

² Vaporizing-liquid type fire extinguishers containing carbon tetrachloride or chlorobromomethane or other toxic vapors or liquids are not permitted.

(2) Fixed fire-extinguishing systems shall be checked as noted in Table 189.25-20(a)(2). In addition, all parts of the fixed fire-extinguishing systems shall be examined for excessive corrosion and general conditions.

TABLE 189.25-20(a)(2)

Type system	Test
Foam.....	Systems utilizing a soda solution shall have such solution replaced. In all cases, ascertain that powder is not caked.
Carbon dioxide.....	Weigh cylinders. Recharge if weight loss exceeds 10 percent of weight of charge. ¹

¹ Cylinders must be tested and marked and all flexible connections on fixed carbon dioxide and halon systems must be tested or renewed as required in §§ 147.60 and 147.65 of this chapter.

(3) On all fire-extinguishing systems all piping, controls, valves, and alarms shall be checked to ascertain that the system is in operating condition.

(4) The fire main system shall be operated and the pressure checked at the outlets having the greatest pressure drop between the fire pumps and the nozzles which may not always be the most remote and highest outlets. All firehoses shall be subjected to a test pressure equivalent to the maximum pressure to which they may be subjected in service, but not less than 100 p.s.i.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGD 78-154, 44 FR 13492, Mar. 12, 1979; CGD 84-044, 53 FR 7752, Mar. 10, 1988]

§ 189.25-25 Hull equipment.

(a) At each inspection for certification the inspector shall conduct the following tests and inspections of hull equipment:

(1) All watertight doors shall be operated locally by manual power and also by hydraulic or electric power if so fitted. Where remote control is fitted, the doors shall also be operated by the remote control apparatus.

(2) The remote controls of all valves shall be operated.

(3) An examination of installed weight, handling gear and related shipboard records shall be made to as-

certain the condition and suitability of the equipment for the service intended. In conducting this examination the marine inspector shall be guided by the provisions of Subpart 189.35. Current valid certificates and registers, issued by a recognized nonprofit organization or association approved by the Commandant, may be accepted as prima facie evidence of the condition and suitability of the weight handling gear. Weight handling gear certificates and registers will not be issued by the Coast Guard.

§ 189.25-30 Electrical engineering equipment.

(a) For inspection procedures of Electrical Engineering equipment and systems, see Subchapter J (Electrical Engineering) of this chapter.

§ 189.25-35 Marine engineering equipment.

(a) For inspection procedures of Marine Engineering equipment and systems, see Subchapter F (Marine Engineering) of this chapter.

§ 189.25-38 Pollution prevention.

At each inspection for certification, the inspector shall examine the vessel to determine that it meets the vessel design and equipment requirements for pollution prevention in 33 CFR Part 155, Subpart B.

(CGD 71-161R, 37 FR 28263, Dec. 21, 1972)

§ 189.25-40 Sanitary inspection.

(a) At each inspection for certification, the quarters, toilets, and washing spaces, galleys, serving pantries, lockers, etc., shall be examined by the marine inspector to be assured that they are in a sanitary condition.

§ 189.25-45 Fire hazards.

(a) At each inspection for certification, the inspector shall examine the tank tops and bilges in the machinery spaces to see that there is no accumulation of oil which might create a fire hazard.

§ 189.25-47 Chemical and explosive hazards.

(a) The marine inspector shall inspect every chemistry laboratory, sci-

entific laboratory, and chemical storeroom during each inspection for certification.

(b) Magazines, vans, and chests shall be inspected during each inspection for certification.

§ 189.25-50 Inspector not limited.

(a) Nothing in this subpart shall be construed as limiting the inspector from making such tests or inspections as he deems necessary to be assured of the safety and seaworthiness of the vessel.

Subpart 189.27—Reinspection

§ 189.27-1 When made.

(a) At least one reinspection shall be made on each vessel holding a certificate of inspection valid for 2 years. This reinspection will be made, where possible, between the 10th and 14th months of the period for which the certificate is valid.

(b) No written application for reinspection will be required.

§ 189.27-5 Scope.

(a) In general, the scope of the reinspection shall be the same as for the inspection for certification, but will be in less detail unless it is determined that a major change has occurred since the last inspection.

§ 189.27-10 Deficiencies in maintenance.

(a) If the reinspection reveals deficiencies in the maintenance as called for by the regulations in this subchapter, such necessary repairs or improvements shall be made as may be ordered.

§ 189.27-15 Inspector not limited.

(a) Nothing in this subpart shall be construed as limiting the marine inspector from making such tests or inspections as he deems necessary to be assured of the seaworthiness of the vessel.

Subpart 189.30—Inspection After Accident

§ 189.30-1 General or partial survey.

(a) A survey, either general or partial, according to the circumstances, shall be made every time an accident occurs or a defect is discovered which affects the safety of the vessel or the efficacy or completeness of its lifesaving appliances, firefighting or other equipment, or whenever any important repairs or renewals are made. The survey shall be such as to insure that the necessary repairs or renewals have been effectively made, that the material and the workmanship of such repairs or renewals are in all respects satisfactory, and that the vessel complies in all respects with the regulations in this subchapter.

Subpart 189.33—Sanitary Inspections

§ 189.33-1 When made.

(a) An inspection of quarters, toilet and washing spaces, serving pantries, galleys, etc., shall be made at least once in every month. If the route of the vessel is such that it is away from a U.S. port for more than 1 month, an inspection shall be conducted at least once every trip.

Subpart 189.35—Weight Handling Gear

§ 189.35-1 Application.

(a) The requirements of this subpart shall apply to all weight handling gear installed on oceanographic research vessels except weight handling gear designated to handle primary lifesaving equipment. Weight handling gear designated for this use shall meet the applicable portions of Subchapter I (Cargo and Miscellaneous Vessels) of this chapter.

(b) Weight handling gear placed under the inspection and testing required for cargo gear by the classification society or cargo gear bureaus recognized in Subchapter I (Cargo and Miscellaneous Vessels) of this chapter may be considered as having met the intent of this subpart.

§ 189.35-3 Intent.

(a) In recognition of the special nature of oceanographic research vessel operations, it is intended that maximum flexibility be given to the owner or operator in complying with the safety requirements for weight handling gear in this subpart. The primary interest of the Coast Guard shall extend to hazards associated with the connections to the vessel, dangerous moving parts, extremes in temperature and shock hazards.

§ 189.35-5 Tests.

(a) An installation load test and safety assessment shall be conducted by the owner or operator. Section 189.35-13 may be used as a guide for the safety assessment. It shall be the responsibility of the owner or operator to notify the Officer in Charge, Marine Inspection, of the time and place of the installation tests when occurring in a port of the United States to permit a marine inspector to witness the tests if desired. Subsequent owner or operator conducted tests may be required at the time of the vessel's inspection periods if a visual examination or review of the equipment record reveals evidence of an unsafe condition. Tests should normally consist of exercising the equipment as a unit with a proof load 25 percent in excess of the equipment's normal working load, however manufacturer's design limitations should not be exceeded. Consideration shall be given to the plans of loading when conducting these tests. Braking, safety and limiting devices shall be tested whenever feasible.

§ 189.35-7 Examinations.

(a) Examination of weight handling gear will normally consist of a visual examination with access covers removed. Suitability of the equipment for the service intended will be emphasized. Disassembly of the equipment will be required only when there is evidence of a deficiency or an unsafe condition. Non-destructive tests, such as radiography, ultrasonic, electronic, or other methods may be used if appropriate, however will not be required.

§ 189.35-9 Plans.

(a) Plans will not normally be required, however depending on the use of the weight handling gear, submission of plans or other technical information may be required by the Officer in Charge, Marine Inspection. Unless an unsafe condition is in evidence, vessel operations will not be delayed by plans or other technical information are under review. Plans, when required, shall normally include:

(1) One line electrical diagrams showing appropriate overload protection as currently required by Subchapter J (Electrical Engineering) of this chapter.

(2) Plans showing hydraulic or pneumatic equipment.

(3) Stress and/or arrangement diagrams with supporting design calculations as appropriate to the specific equipment in question.

(b) When weight handling gear is subject to a recognized code or specification, plans or other technical data will not normally be required. Purchase specification or vendor's information may be accepted in lieu of design calculations if sufficiently definitive of materials, design (safety) factors and operating limitations.

(c) Design information, when required, will be evaluated against the following minimum design criteria:

(1) Wet Weight Handling Gear: Wet gear shall be considered to consist of gear used to lower equipment, apparatus or objects beneath the surface of water or for trailing objects, where the wire rope or cable is payed out beneath the surface and becomes part of the line pull at the head sheave or winch drum. Wet gear shall be designed, as a minimum, to withstand and operate in excess of the breaking strength of the strongest section or to be used in any condition of loading. The safety factor for all metal structural parts shall be a minimum of 1.5, i.e., the yield strength of the material shall be at least 1.5 times the calculated stresses resulting from application of a load equal to the nominal breaking strength of the strongest section of wire rope to be used. Suitable assumptions for the actual loading conditions shall be used in the design of wet gear. The lead of the wire rope

from the head sheave or winch drum shall be considered to vary from the vertical and in azimuth in a manner to represent the most adverse loading condition.

(2) Other weight handling gear will be evaluated on the basis of the safety factors set forth in § 91.37-25 of Subchapter I (Cargo and Miscellaneous Vessels) of this chapter.

(3) Hydraulic or pneumatic systems will be evaluated on the basis of Subchapter F (Marine Engineering) of this chapter.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGFR 69-116, 35 FR 6863, Apr. 30, 1970]

§ 189.35-11 Special cases.

(a) If the above safety requirements defeat the purpose of any particular piece of weight handling gear, consideration will be given to a relaxation of the requirements.

§ 189.35-13 Master's responsibility.

(a) The master of the vessel shall ensure the following:

(1) The gear is properly installed and secure.

(2) Suitable safety guards are installed in way of rotating machinery, hazardous cable runs and at other appropriate locations.

(3) Operating limitations are posted in an appropriate manner.

(4) Only qualified operators are permitted to operate the weight handling gear. The master shall designate the operators.

(5) A minimum number of persons are allowed in the immediate area.

(6) The installation does not violate the approved trim and stability information.

(7) A suitable permanent record is maintained on the equipment as appropriate showing such items as inspections, tests, important repairs and casualties experienced. This record shall be made available to the Officer in Charge, Marine Inspection, upon request.

(b) Prior to a vessel's departure, an entry shall also be made in the official logbook that the ship's weight handling gear is in compliance with the

§ 189.35-15

applicable requirements in this subchapter.

§ 189.35-15 Major installations.

(a) Where the installation of weight handling gear requires modifications to the vessel's structure or affects the stability in a manner which cannot be assessed by the information contained in the approved trim and stability information, appropriate plans and information shall be submitted for approval. The installation shall then be inspected by the Officer in Charge, Marine Inspection for conformance with the approved installation plans and information.

§ 189.35-90 Weight handling gear manufactured prior to March 1, 1968.

(a) Weight handling gear manufactured prior to March 1, 1968, will be accepted on the basis of appropriate tests and examinations should plans or other technical information not be available.

Subpart 189.40—Drydocking

§ 189.40-1 Definitions relating to hull examinations.

As used in this part—

(a) "Drydock examination" means hauling out a vessel or placing a vessel in a drydock or slipway for an examination of all accessible parts of the vessel's underwater body and all through-hull fittings, sea chests, sea valves, sea strainers, and valves for the emergency bilge suction.

(b) "Internal structural examination" means an examination of the vessel while afloat or in drydock and consists of a complete examination of the vessel's main strength members, including the major internal framing, the hull plating, voids, and ballast tanks, but not including cargo or fuel oil tanks.

(c) "Underwater survey" means the examination, while the vessel is afloat, of all accessible parts of the vessel's underwater body and all through hull fittings, sea chests, sea valves, sea strainers, and valves for the emergency bilge suction.

[CGD 84-024, 52 FR 39656, Oct. 23, 1987, as amended at 53 FR 32232, Aug. 24, 1988]

46 CFR Ch. I (10-1-90 Edition)

§ 189.40-3 Drydock examination, underwater survey, and internal structural examination intervals.

(a) Except as provided for in paragraphs (b) through (g) of this section, each vessel must undergo drydock and internal structural examinations as follows:

(1) Vessels that operate in salt water must undergo two drydock and two internal structural examinations within any five year period. No more than three years may elapse between any two examinations.

(2) Vessels that operate in fresh water at least six months in every 12 month period since the last drydock examination must undergo drydock and internal structural examinations at intervals not to exceed five years.

(b) Vessels with wooden hulls must undergo two drydock and two internal structural examinations within any five year period regardless of the type of water in which they operate. No more than three years may elapse between any two examinations.

(c) If, during an internal structural examination or underwater survey, damage or deterioration to the hull plating or structural members is discovered, the Officer in Charge, Marine Inspection, may require the vessel to be drydocked or otherwise taken out of service to further assess the extent of the damage and to effect permanent repairs.

(d) Each vessel under paragraph (a) of this section that is less than 15 years of age may be considered for an underwater survey instead of alternate drydock examinations, provided the vessel is fitted with an effective hull protection system. Vessel owners or operators must apply to the Officer in Charge, Marine Inspection, for approval of underwater surveys instead of alternate drydock examinations for each vessel. The application must include the following information:

(1) The procedure to be followed in carrying out the underwater survey.

(2) The location where the underwater survey will be accomplished.

(3) The method to be used to accurately determine the diver location relative to the hull.

The means that will be provided for examining sea chests, sea valves and other through-hull fittings.

The means that will be provided for checking shaft bearing clearances.

The condition of the vessel, including the anticipated draft of the vessel at the time of the survey.

A description of the hull protection system.

Vessels otherwise qualifying under paragraph (d) of this section, are 15 years of age or older may be considered for continued participation in the underwater survey program on a case-by-case basis, if—

Before the vessel's next scheduled drydocking, the owner or operator submits a request for continued participation to Commandant (G-MVI);

During the vessel's next drydocking after the request is submitted, no appreciable hull deterioration is indicated as a result of a complete set of gaugings; and

The results of the hull gauging and the results of the Coast Guard drydock examination together with the recommendation of the Officer in Charge, Marine Inspection, are submitted to Commandant (G-MVI) for approval.

Each vessel which has not met the applicable examination schedules in paragraph (a) through (e) of this section because it is on a lay-up, must undergo the required examinations upon completion of the lay-up.

The Commandant (G-MVI) may authorize extensions to the examination intervals specified in paragraphs (a) and (b) of this section.

CGD 84-024, 52 FR 39656, Oct. 23, 1987, as amended at 53 FR 32232, Aug. 24, 1988]

189.43-5 Notice and plans required.

The master, owner, operator, or agent of the vessel shall notify the Officer in Charge, Marine Inspection, whenever the vessel is to be drydocked regardless of the reason for drydocking.

Each vessel, except barges, that holds a Load Line Certificate must have on board a plan showing the vessel's scantlings. This plan must be made available to the Coast Guard

marine inspector whenever the vessel undergoes a drydock examination, internal structural examination, or underwater survey or whenever repairs are made to the vessel's hull.

(c) Each barge that holds a Load Line Certificate must have a plan showing the barge's scantlings. The plan need not be maintained on board the barge but must be made available to the Coast Guard marine inspector whenever the barge undergoes a drydock examination, internal structural examination, or underwater survey or whenever repairs are made to the barge's hull.

[CGD 84-024, 52 FR 39657, Oct. 23, 1987]

Subpart 189.43—Integral Fuel Oil Tank Examinations

§ 189.43-1 When required.

(a) Each fuel oil tank with at least one side integral to the vessel's hull and located within the hull ("integral fuel oil tank") is subject to inspection as provided in this section. The owner or operator of the vessel shall have the tanks cleaned out and gas freed as necessary to permit internal examination of the tank or tanks designated by the marine inspector. The owner or operator shall arrange for an examination of the fuel tanks of each vessel during an internal structural examination at intervals not to exceed five years.

(b) Integral non-double-bottom fuel oil tanks need not be cleaned out and internally examined if the marine inspector is able to determine by external examination that the general condition of the tanks is satisfactory.

(c) Double-bottom fuel oil tanks on vessels less than 10 years of age need not be cleaned out and internally examined if the marine inspector is able to determine by external examination that the general condition of the tanks is satisfactory.

(d) All double-bottom fuel oil tanks on vessels 10 years of age or older but less than 15 years of age need not be cleaned out and internally examined if the marine inspector is able to determine by internal examination of at least one forward double-bottom fuel oil tank, and by external examination

§ 189.45-1

of all other double-bottom fuel oil tanks on the vessel, that the general condition of the tanks is satisfactory.

(e) All double-bottom fuel oil tanks on vessels 15 years of age or older need not be cleaned out and internally examined if the marine inspector is able to determine by internal examination of at least one forward, one amidships, and one aft double-bottom fuel oil tank, and by external examination of all other double-bottom fuel oil tanks on the vessel, that the general condition of the tanks is satisfactory.

[CGD 84-024, 52 FR 39657, Oct. 23, 1987, as amended at 53 FR 32232, Aug. 24, 1988]

Subpart 189.45—Repairs and Alterations

§ 189.45-1 Notice required.

(a) No repairs or alterations affecting the stability or safety of the vessel with regard to the hull, machinery, and equipment shall be made without the knowledge of the Officer in Charge, Marine Inspection.

(b) Drawings of alterations shall be approved before work is started unless deemed unnecessary by the Officer in Charge, Marine Inspection.

(c) Drawings will not be required for repairs in kind.

(d) Notice is not required for repairs or alterations to scientific equipment where the stability or safety of the vessel with regard to the hull and machinery or equipment is not affected.

§ 189.45-5 Inspection required.

(a) An inspection, either general or partial depending upon the circumstances, shall be made whenever any important repairs or alterations are undertaken.

Subpart 189.50—Special Operating Requirements

§ 189.50-1 Inspection and testing required when making alterations, repairs, or other such operations involving riveting, welding, burning, or like fire-producing actions.

(a) The provisions of "Standard for the Control of Gas Hazards on Vessels To Be Repaired," NFPA No. 306, published by National Fire Protection As-

46 CFR Ch. I (10-1-90 Edition)

sociation, 60 Batterymarch Street, Boston, Mass. 02110, shall be used as a guide in conducting the inspections and issuance of certificates required by this section.

(b) Until an inspection has been made to determine that such operation can be undertaken with safety, no alterations, repairs, or other such operations involving riveting, burning, welding, or like fire-producing actions shall be made:

(1) Within or on the boundaries of tanks which have been used to carry combustible liquids or chemicals; or,

(2) Within spaces adjacent to tanks which have been used to carry Grade D combustible liquids, except where the distance between such tanks and the work to be performed is not less than twenty-five (25) feet; or,

(3) Within or on the boundaries of fuel tanks; or,

(4) Within or on the boundaries of tanks carrying Grade B or Grade C flammable liquids or within spaces adjacent to such tanks; or,

(5) To pipelines, heat coils, pumps, fittings, or other appurtenances connected to such fuel tanks.

(c) Such inspections shall be made and evidenced as follows:

(1) In ports or places in the United States or its territories and possessions the inspection shall be made by a marine chemist certificated by the National Fire Protection Association; however, if the services of such certificated marine chemist are not reasonably available, the Officer in Charge, Marine Inspection, upon the recommendation of the vessel owner and his contractor or their representative shall select a person who, in the case of an individual vessel, shall be authorized to make such inspection. If the inspection indicates that such operations can be undertaken with safety, a certificate setting forth the fact in writing and qualified as may be required, shall be issued by the certificated marine chemist or the authorized person before the work is started. Such qualifications shall include any requirements as may be deemed necessary to maintain, insofar as can reasonably be done, the safe conditions in the spaces certified throughout the operation and shall include such addi-

onal tests and certifications as considered required. Such qualifications and requirements shall include precautions necessary to eliminate or minimize hazards that may be present from protective coatings or residues from cargoes.

(2) When not in such a port or place, and a marine chemist or such person authorized by the Officer in Charge, Marine Inspection, is not reasonably available, the inspection shall be made by the senior officer in the crew present and a proper entry shall be made in the vessel's logbook.

(d) It shall be the responsibility of the senior officer present to secure copies of certificates issued by the certified marine chemist or such person authorized by the Officer in Charge, Marine Inspection. It shall be the responsibility of the senior officer in the crew present, insofar as the persons under his control are concerned, to maintain a safe condition on the vessel and full observance of all qualifications and requirements listed by the marine chemist in the certificate.

Subpart 189.55—Plan Approval

189.55-1 General.

(a) The following list of required plans in § 189.55-5 is general in character, but includes all plans which normally show construction and safety features coming under the cognizance of the Coast Guard. In the case of a particular vessel, all of the plans enumerated may not be applicable and it is intended that only those plans and specifications be submitted as will clearly show the vessel's arrangements, construction and required equipment.

(b) In the following list of required plans in § 189.55-5, the items which must be approved by the American Bureau of Shipping for vessels classed by that organization are indicated by an asterisk. When prints bearing record of such approval by the American Bureau of Shipping are forwarded to the Coast Guard they will in general be accepted as satisfactory except insofar as the law or the Coast Guard regulations contain requirements which are not covered by the American Bureau of Shipping.

§ 189.55-5 Plans and specifications required for new construction.

(a) *General.* (1) Specifications.

(2) General arrangement plan of decks, holds, inner bottoms, etc., and including inboard and outboard profile.

(b) *Hull structure.*¹ (1) *Inner bottom plating and framing.

(2) *Midship section.

(3) *Shell plating and framing.

(4) *Stem, stern frame, and rudder.

(5) *Structural deck plans for strength decks.

(6) *Pillars and girders.

(7) *Watertight and oiltight bulkheads.

(8) *Foundations for main machinery and boilers.

(9) *Arrangement of ports, doors, and airports in shell plating.

(10) *Hatch coamings and covers in weather and watertight decks.

(11) *Details of watertight doors and operating gear.

(12) *Scuppers and drains penetrating shell plating.

(13) Weight handling gear when required by the Officer in Charge, Marine Inspection, as provided for by § 189.35-9.

(c) *Subdivision and stability.* Plans required by Part 170 of this chapter.

(d) *Fire control.* (1) General arrangement plans showing for each deck the control stations, the various fire sections enclosed by fire resisting bulkheads, the arrangement of the alarm and extinguishing systems, the fire extinguishers, means of access to different compartments and decks and the ventilation system including location of ventilation shutdowns, positions of dampers and the number identifying each system.

(2) Ventilation diagram including dampers and other fire control features.

(3) Details of alarm systems.

(4) Details of extinguishing systems, including fire mains, carbon dioxide, foam and sprinkling systems.

¹The asterisk (*) indicates items which may require approval by the American Bureau of Shipping for vessels classed by that society.

§ 189.55-10

(e) *Marine engineering.* For plans required for marine engineering equipment and systems. See Subchapter F (Marine Engineering) of this chapter.

(f) *Electrical engineering.* For plans required for electrical engineering, equipment, and systems, see Subchapter J (Electrical Engineering) of this chapter.

(g) *Lifesaving equipment.* These plans are to show the location and arrangement of embarkation decks, all overboard discharges and projections in way of launching lifeboats, weights of lifeboats fully equipped and loaded, working loads of davits and winches, types and sizes of falls, the manufacturer's name and identification for all equipment, and all other relevant and necessary information.

(1) Arrangement of lifeboats.

(2) Arrangement of davits.

(3) Location and stowage of liferafts and buoyant apparatus.

(h) *Accommodations for crewmembers and scientific personnel.* Arrangement plans showing accommodations, ventilation, escapes, hospitals, and sanitary facilities for all crewmembers and scientific personnel.

(i) *Magazines and magazine vans.*

(1) All plans relating to the arrangement, construction, ventilation, and fire protection system for magazines and magazine vans. (The plans required for magazines and magazine vans to be installed or carried on a vessel after the vessel is in operation, are set forth in Subpart 195.11 of this subchapter.)

(2) Ventilation and sprinkler system calculations for magazines and magazine vans.

(j) For vessels of 100 meters (328 feet) or more in length contracted for on or after September 7, 1990, a plan must be included which shows how visibility from the navigation bridge will meet the standards contained in § 190.02-15 of this subchapter.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGD 79-023, 48 FR 51052, Nov. 4, 1983; CGD 85-099, 55 FR 32249, Aug. 8, 1990]

§ 189.55-10 Plans required for alterations of existing vessels.

(a) In the event of alterations involving the safety of the vessel, the appli-

46 CFR Ch. I (10-1-90 Edition)

cable plans shall be submitted for approval covering the proposed work except as modified by § 189.45-1.

§ 189.55-15 Procedure for submittal of plans.

(a) As the relative location of shipyards, design offices, and Coast Guard offices vary throughout the country, no specific routing will be required in the submittal of plans. In general, one of the following procedures would apply, but in a particular case, if a more expeditious procedure can be used, there will be no objection to its adoption.

(1) The plans may be submitted to the Officer in Charge, Marine Inspection, in the district in which the vessel is to be built. This procedure will be most expeditious in the case of those offices where personnel and facilities are available for examination and approval of plans locally.

(2) The plans may be submitted directly to the Commandant (G-MTH), U.S. Coast Guard, Washington, DC 20593-0001. In this case, the plans will be returned directly to the submitter with a copy of the action being forwarded to the interested Officer in Charge, Marine Inspection.

(3) The plans may be submitted directly to Commanding Officer, U.S. Coast Guard Marine Safety Center (G-MSC), 400 Seventh St., SW., Washington, DC 20590-0001.

(4) In the case of classed vessels, upon specific request by the submitter, the American Bureau of Shipping will arrange to forward the necessary plans to the Coast Guard indicating its action thereon. In this case, the plans will be returned as noted in paragraph (a)(2) of this section.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGD 82-063b, 48 FR 4783, Feb. 3, 1983; CGD 85-048b, 51 FR 15496, Apr. 24, 1986; CGD 88-070, 53 FR 34538, Sept. 7, 1988; CGD 89-025, 54 FR 19572, May 4, 1989]

§ 189.55-20 Number of plans required.

(a) Three copies of each plan are normally required so that one can be returned to the submitter. If the submitter desires additional approved plans, a suitable number should be

submitted to permit the required distribution.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGFR 69-116, 35 FR 6862 Apr. 16, 1970]

Subpart 189.60—Certificates Under International Convention for Safety of Life at Sea, 1974

§ 189.60-1 Application.

(a) The provisions of this subpart, with the exception of §§ 189.60-30 and 189.60-40(e), shall apply to all oceanographic research vessels on an international voyage other than nuclear vessels. (See § 188.05-10 of this subchapter.)

(b) The provisions of §§ 189.60-30, 189.60-35, and 189.60-40(e) shall apply to all nuclear oceanographic research vessels on an international voyage.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGD 77-081, 46 FR 56204, Nov. 16, 1981]

§ 189.60-5 Cargo Ship Safety Construction Certificate.

(a) All vessels on an international voyage are required to have a Cargo Ship Safety Construction Certificate. This certificate shall be issued by the U.S. Coast Guard or the American Bureau of Shipping to certain vessels on behalf of the United States of America as provided in Regulation 12, Chapter I, of the International Convention for Safety of Life at Sea, 1974.

(b) All such vessels shall meet the applicable requirements of this chapter for vessels on an international voyage.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGD 90-008, 55 FR 30665, July 26, 1990]

§ 189.60-10 Cargo Ship Safety Equipment Certificate.

(a) All vessels on an international voyage are required to have a Cargo Ship Safety Equipment Certificate.

(b) All such vessels shall meet the applicable requirements of this chapter for vessels on an international voyage.

§ 189.60-15 Cargo Ship Safety Radiotelegraphy Certificate.

(a) The application for Cargo Ship Safety Radiotelegraphy Certificate is made on FCC Form 801 to the local office of the Federal Communications Commission.

(b) Where applicable, a Cargo Ship Safety Radiotelegraphy Certificate will be issued by the Federal Communications Commission to a vessel meeting its requirements for a vessel fitted with a radiotelegraph installation.

§ 189.60-20 Cargo Ship Safety Radiotelephony Certificate.

(a) The application for a Cargo Ship Safety Radiotelephony Certificate is made on FCC Form 801 to the local office of the Federal Communications Commission.

(b) Where applicable, a Cargo Ship Safety Radiotelephony Certificate will be issued by the Federal Communications Commission to a vessel meeting its applicable requirements for a vessel fitted with a radiotelephone installation.

§ 189.60-25 Exemption Certificate.

(a) A vessel may be exempted by the Commandant from complying with certain requirements of the Convention under his administration upon request made in writing to him and transmitted via the Officer in Charge, Marine Inspection.

(b) When an exemption is granted to a vessel by the Commandant under and in accordance with the Convention, an Exemption Certificate describing such exemption shall be issued through the appropriate Officer in Charge, Marine Inspection, in addition to other required certificates.

§ 189.60-30 Nuclear Cargo Ship Safety Certificate.

(a) All nuclear cargo vessels on an international voyage are required to have a Nuclear Cargo Ship Safety Certificate.

(b) All such vessels shall meet the applicable requirements of this chapter for nuclear vessels on an international voyage.

§ 189.60-35

(c) Nuclear vessels cannot be exempted from any requirements of the Convention.

§ 189.60-35 Posting of Convention certificates.

(a) The certificates described in this subpart, or certified copies thereof, when issued to a vessel shall be posted in a prominent and accessible place on the vessel.

(b) The certificates shall be carried in a manner similar to that described in § 189.01-5 for a certificate of inspection.

§ 189.60-40 Duration of certificates.

(a) A Cargo Ship Safety Equipment Certificate shall be issued for a period of not more than 24 months.

(b) A Cargo Ship Safety Construction Certificate shall be issued for a period of not more than 60 months.

(c) A Cargo Ship Safety Radiotelegraphy Certificate and a Cargo Ship Safety Radiotelephony Certificate shall be issued for a period of not more than 12 months.

(d) An Exemption Certificate shall not be valid for longer than the period of the certificate to which it refers.

(e) The Nuclear Cargo Ship Safety Certificate shall be issued for a period of not more than 12 months.

(f) A Convention Certificate may be withdrawn, revoked, or suspended at any time when it is determined the vessel is no longer in compliance with applicable requirements. (See § 2.01-70 of this chapter for procedures governing appeals.)

§ 189.60-45 American Bureau of Shipping.

(a) The American Bureau of Shipping, with its home office at 45 Eisenhower Drive, Paramus, NJ 07653-0910, is hereby designated as an organization duly authorized to issue the "Cargo Ship Safety Construction Certificate" to certain oceanographic research vessels on behalf of the United States of America as provided in Regulation 12, Chapter I, of the International Convention for Safety of Life at Sea, 1974, and Executive Order 12234 and the certificate shall be subject to the requirements in this subpart. The American Bureau of Shipping is authorized to place the official seal of

46 CFR Ch. I (10-1-90 Edition)

the United States of America on the certificate. This designation and delegation to the American Bureau of Shipping shall be in effect until terminated by proper authority and notice of cancellation is published in the *FEDERAL REGISTER*.

(b) At the option of the owner or agent of a vessel on an international voyage and on direct application to the American Bureau of Shipping, the Bureau may issue to such vessel a Cargo Ship Safety Construction Certificate, having a period of validity of not more than 60 months after ascertaining that the vessel:

(1) Has met the applicable requirements of the Convention; and

(2) Is currently classed by the Bureau and classification requirements have been dealt with to the satisfaction of the Bureau.

(c) When the Bureau determines that a vessel to which it has issued a Cargo Ship Safety Construction Certificate no longer complies with the Bureau's applicable requirements for classification, the Bureau shall immediately furnish to the Coast Guard all relevant information, which will be used by the Coast Guard to determine whether or not to withdraw, revoke or suspend the Cargo Ship Safety Construction Certificate.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGD 77-081, 46 FR 56204, Nov. 16, 1981; CGD 90-008, 55 FR 30665, July 26, 1990]

PART 190—CONSTRUCTION AND ARRANGEMENT

Subpart 190.01—Hull Structure

Sec.

- 190.01-1 Application.
- 190.01-5 Vessels subject to load line.
- 190.01-10 Structural standards.
- 190.01-13 Sliding watertight doors.
- 190.01-15 Special consideration.
- 190.01-90 Vessels contracted for prior to March 1, 1968.

Subpart 190.02—Navigation Bridge Visibility

- 190.02-01 Navigation bridge visibility

Coast Guard, DOT

§ 190.01-15

Subpart 190.03—Subdivision and Stability

190.20-90 Vessels contracted for prior to March 1, 1968.

190.03-1 General.

Subpart 190.05—General Fire Protection

Subpart 190.25—Rails and Guards

- 190.05-1 Application.
- 190.05-3 Fire hazards to be minimized.
- 190.05-5 Woodwork insulated from heated surfaces.
- 190.05-10 Chemical storeroom and lamp room construction.
- 190.05-15 Segregation of spaces containing the emergency source of electric power.
- 190.05-20 Segregation of chemical laboratories and chemical storerooms.

- 190.25-1 Application.
- 190.25-5 Where rails required.
- 190.25-10 Storm rails.
- 190.25-15 Guards in dangerous places.
- 190.25-90 Vessels contracted for prior to July 1, 1969.

AUTHORITY: 46 U.S.C. 2113, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGFR 67-83, 33 FR 1125, Jan. 27, 1968, unless otherwise noted.

Subpart 190.07—Structural Fire Protection

Subpart 190.01—Hull Structure

- 190.07-1 Application.
- 190.07-5 Definitions.
- 190.07-10 Construction.
- 190.07-90 Vessels contracted for prior to March 1, 1968.

§ 190.01-1 Application.

(a) The provisions of this subpart, with the exception of § 190.01-90, shall apply to all vessels contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 190.01-90.

Subpart 190.10—Means of Escape

- 190.10-1 Application.
- 190.10-5 Two means required.
- 190.10-10 Location.
- 190.10-15 Vertical ladders not accepted.
- 190.10-20 No means for locking doors.
- 190.10-25 Stairway size.
- 190.10-30 Dead end corridors.
- 190.10-35 Public spaces.
- 190.10-40 Access to lifeboats.
- 190.10-45 Weather deck communications.
- 190.10-90 Vessels contracted for prior to March 1, 1968.

§ 190.01-5 Vessels subject to load line.

(a) For vessels assigned a load line, see Subchapter E (Load Lines) of this chapter for special requirements as to strength, closure of openings, etc.

§ 190.01-10 Structural standards.

(a) In general, compliance with the standards established by the American Bureau of Shipping, see Subpart 188.35 of this subchapter, will be considered as satisfactory evidence of the structural efficiency of the vessel. However, in special cases, a detailed analysis of the entire structure or some integral part may be made by the Coast Guard to determine the structural requirements.

§ 190.01-13 Sliding watertight doors.

(a) Sliding watertight doors, where fitted, shall be designed, tested, and installed in accordance with Subpart 163.001 of Part 163 of Subchapter Q (Specifications) of this chapter.

§ 190.01-15 Special consideration.

(a) Special consideration will be given to the structural requirements for small vessels or vessels of an unusual design not contemplated by the

Subpart 190.15—Ventilation

- 190.15-1 Application.
- 190.15-5 Vessels using fuel having a flash-point of 110° F. or lower.
- 190.15-10 Ventilation for closed spaces.
- 190.15-15 Ventilation for living spaces and quarters.
- 190.15-90 Vessels contracted for prior to March 1, 1968.

Subpart 190.20—Accommodations for Officers, Crew, and Scientific Personnel

- 190.20-1 Application.
- 190.20-5 Intent.
- 190.20-10 Location of crew spaces.
- 190.20-15 Construction.
- 190.20-20 Sleeping accommodations.
- 190.20-25 Washrooms and toilet rooms.
- 190.20-30 Messrooms.
- 190.20-35 Hospital space.
- 190.20-40 Other spaces.
- 190.20-45 Lighting.
- 190.20-50 Heating.
- 190.20-55 Insect screens.

§ 190.01-90

rules of the American Bureau of Shipping.

§ 190.01-90 Vessels contracted for prior to March 1, 1968.

(a) Existing structure previously approved will be considered satisfactory so long as it is maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original construction.

(b) Conversions, major alterations, new installations, and replacements, shall meet the applicable specifications in this subpart for new vessels.

Subpart 190.02—Navigation Bridge Visibility

§ 190.02-1 Navigation bridge visibility.

Each oceanographic research vessel which is 100 meters (328 feet) or more in length and contracted for on or after September 7, 1990, must meet the following requirements:

(a) The field of vision from the navigation bridge, whether the vessel is in a laden or unladen condition, must be such that:

(1) From the conning position, the view of the sea surface is not obscured forward of the bow by more than the lesser of two ship lengths or 500 meters (1640 feet) from dead ahead to 10 degrees on either side of the vessel. Within this arc of visibility any blind sector caused by cargo, cargo gear, or other permanent obstruction must not exceed 5 degrees.

(2) From the conning position, the horizontal field of vision extends over an arc from at least 22.5 degrees abaft the beam on one side of the vessel, through dead ahead, to at least 22.5 degrees abaft the beam on the other side of the vessel. Blind sectors forward of the beam caused by cargo, cargo gear, or other permanent obstruction must not exceed 10 degrees each, nor total more than 20 degrees, including any blind sector within the arc of visibility described in paragraph (a)(1) of this section.

(3) From each bridge wing, the field of vision extends over an arc from at least 45 degrees on the opposite bow,

46 CFR Ch. I (10-1-90 Edition)

through dead ahead, to at least dead astern.

(4) From the main steering position, the field of vision extends over an arc from dead ahead to at least 60 degrees on either side of the vessel.

(5) From each bridge wing, the respective side of the vessel is visible forward and aft.

(b) Windows fitted on the navigation bridge must be arranged so that:

(1) Framing between windows is kept to a minimum and is not installed immediately in front of any work station.

(2) Front windows are inclined from the vertical plane, top out, at an angle of not less than 10 degrees and not more than 25 degrees.

(3) The height of the lower edge of the front windows is limited to prevent any obstruction of the forward view previously described in this section.

(4) The height of the upper edge of the front windows allows a forward view of the horizon at the conning position, for a person with a height of eye of 1.8 meters (71 inches), when the vessel is at a forward pitch angle of 20 degrees.

(c) Polarized or tinted windows must not be fitted.

[CGD 85-099, 55 FR 32249, Aug. 8, 1990]

Subpart 190.03—Subdivision and Stability

§ 190.03-1 General.

Each vessel must comply with the applicable requirements in Subchapter S of this chapter.

[CGD 79-023, 48 FR 51053, Nov. 4, 1983]

Subpart 190.05—General Fire Protection

§ 190.05-1 Application.

(a) The provisions of this subpart shall apply to all vessels, except as noted otherwise in this subpart.

(b) Non-self-propelled vessels of less than 300 gross tons shall not be subject to the provisions of this subpart.

§ 190.05-3 Fire hazards to be minimized.

(a) The general construction of the vessel shall be such as to minimize fire hazards.

§ 190.05-5 Woodwork insulated from heated surfaces.

(a) Internal combustion engine exhausts, boiler, and galley uptakes, and similar sources of ignition shall be kept clear of and suitably insulated from any woodwork or other combustible matter.

§ 190.05-10 Chemical storeroom and lamp room construction.

(a) Chemical storerooms, lamp, paint, and oil lockers and similar compartments shall be constructed of steel or shall be wholly lined with metal.

§ 190.05-15 Segregation of spaces containing the emergency source of electric power.

(a) When a compartment containing the emergency source of electric power, or vital components thereof, adjoins a space containing either the ship's service generators or machinery necessary for the operation of the ship's service generators, all common bulkheads and/or decks shall be protected by approved "structural insulation" or other approved material. This protection shall be such as to be capable of preventing an excessive temperature rise in the space containing the emergency source of electric power, or vital components thereof, for a period of at least 1 hour in the event of fire in the adjoining space. Bulkheads or decks meeting Class A-60 requirements, as defined by § 72.05-10 of Subchapter H (Passenger Vessels) of this chapter, will be considered as meeting the requirements of this paragraph.

§ 190.05-20 Segregation of chemical laboratories and chemical storerooms.

(a) The provisions of this section shall apply to all vessels contracted for on or after March 1, 1968.

(b) Chemical storerooms shall not be located in horizontal proximity to nor below accommodation or safety areas.

(c) Chemical storerooms shall not be located adjacent to the collision bulkhead, nor boundary divisions of the

boilerroom, engineroom, galley, or other high fire hazard area.

(d) Chemical laboratories shall not be located adjacent to nor immediately below safety areas. Wherever possible they shall be similarly separated from accommodation spaces and high fire hazard areas such as the galley.

Subpart 190.07—Structural Fire Protection

§ 190.07-1 Application.

(a) The provisions of this subpart, with the exception of § 190.07-90, shall apply to all vessels of 4,000 gross tons and over carrying not more than 150 persons and contracted for on or after March 1, 1968.

(b) The provisions of this subpart, with the exception of § 190.07-90, shall apply to all vessels of 300 gross tons and over, but less than 4,000 gross tons, carrying in excess of 16 persons in the scientific party but not more than 150 persons and contracted for on or after March 1, 1968.

(c) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 190.07-90.

(d) Those vessels which carry more than 150 persons shall meet the requirements in §§ 72.05-5 through 72.05-60 of Subchapter H (Passenger Vessels) of this chapter.

§ 190.07-5 Definitions.

(a) *Standard fire tests.* A "standard fire test" is one which develops in the test furnace a series of time temperature relationships as follows:

5 minutes—1,000° F.
10 minutes—1,300° F.
30 minutes—1,550° F.
60 minutes—1,700° F.

(b) *"A" Class divisions.* Bulkheads or decks of the "A" Class shall be composed of steel or equivalent metal construction, suitably stiffened and made intact with the main structure of the vessel; such as shell, structural bulkheads, and decks. They shall be so constructed, that if subjected to the standard fire test, they would be capable of preventing the passage of flame and smoke for 1 hour.

(c) *"B" Class bulkheads.* Bulkheads of the "B" Class shall be constructed with approved incombustible materials and made intact from deck to deck and to shell or other boundaries. They shall be so constructed that, if subjected to the standard fire test, they would be capable of preventing the passage of flame for one-half hour.

(d) *"C" Class divisions.* Bulkheads or decks of the "C" Class shall be constructed of approved incombustible materials, but need meet no requirements relative to the passage of flame.

(e) *Steel or other equivalent metal.* Where the term "steel or other equivalent metal" is used in this subpart, it is intended to require a material which, by itself or due to insulation provided, has structural and integrity qualities equivalent to steel at the end of the applicable fire exposure.

(f) *Approved material.* Where in this subpart approved materials are required, they refer to materials approved under the applicable subparts of Part 164 of Subchapter Q (Specifications) of this chapter, as follows:

Deck coverings	164.006
Structural insulation	164.007
Bulkhead panels	164.008
Incombustible materials	164.009
Interior finish	164.012

[CGFR 67-83, 33 FR 1125, Jan. 27, 1968, as amended by CGD 74-155, 41 FR 17910, Apr. 29, 1976]

§ 190.07-10 Construction.

(a) The hull, superstructure, structural bulkheads, decks, and deckhouses shall be constructed of steel. Alternately, the Commandant may permit the use of other suitable material in special cases, having in mind the risk of fire.

(b) The boundary bulkheads of general laboratory areas, chemical storerooms, galleys, paint and lamp lockers and emergency generator rooms shall be of "A" class construction.

(1) Permanently installed divisional bulkheads between laboratories spaces within a general laboratory area may be of B or C class construction.

(2) Temporary divisional bulkheads between laboratory spaces within a general laboratory area may be con-

structed of combustible materials when they are necessary to facilitate a specific scientific mission.

(c) The boundary bulkheads and decks separating the accommodations and control stations from hold and machinery spaces, galleys, main pantries, laboratories, and storerooms, other than small service lockers, shall be of "A" Class construction.

(1) The boundary bulkheads and decks separating general laboratory areas of 500 square feet or less from accommodations and control stations shall be of "A-15" Class construction as defined by § 72.05-10 of Subchapter H (Passenger Vessels) of this chapter.

(2) The boundary bulkheads and decks separating general laboratory areas of over 500 square feet from accommodations and control stations shall be of "A-30" Class construction as defined by § 72.05-10 of Subchapter H (Passenger Vessels) of this chapter.

(d) Within the accommodation and service areas the following conditions shall apply:

(1) Corridor bulkheads in accommodation spaces shall be of the "A" or "B" Class intact from deck to deck. Stateroom doors in such bulkheads may have a louver in the lower half.

(2) Elevator, dumbwaiter, stairtower, and other trunks shall be of "A" Class construction.

(3) Bulkheads not already specified to be of "A" or "B" Class construction may be of "A", "B", or "C" Class construction.

(4) The integrity of any deck in way of a stairway, shall be maintained by means of "A" or "B" class bulkheads and doors at one level. The integrity of a stairtower shall be maintained by "A" class doors at every level. The door shall be of the self-closing type. Holdback hooks will not be permitted. However, magnetic holdbacks operated from the bridge or other suitable remote control positions are acceptable.

(5) Interior stairs, including stringers and treads, shall be of steel.

(6) Except for washrooms and toilet spaces, deck coverings within accommodation spaces shall be of an approved type. However, overlays for leveling or finishing purposes which do not meet the requirements for an ap-

proved deck covering may be used in thicknesses not exceeding three-eighths of an inch.

(7) Cellings, linings, and insulation, including pipe and duct laggings, shall be approved incombustible materials.

(8) Any sheathing, furring, or holding pieces incidental to the securing of any bulkhead, ceiling, lining, or insulation shall be of approved incombustible materials.

(9) Bulkheads, linings, and ceiling may have a combustible veneer within a room not to exceed two twenty-eighths of an inch in thickness. However, combustible veneers, trim, decorations, etc., shall not be used in corridors or hidden spaces. This is not intended to preclude the use of an approved interior finish or a reasonable number of coats of paint.

(e) Nitrocellulose or other highly flammable or noxious fume-producing paints or lacquers shall not be used.

(f) The provisions of paragraphs (d) (1) through (9) of this section apply to control spaces on vessels whose initial Application for Inspection is submitted to an Officer in Charge, Marine Inspection on or after June 15, 1987.

[CGFR 67-83, 33 FR 1125, Jan. 27, 1968, as amended by CGD 84-073, 52 FR 18364, May 15, 1987; 52 FR 22751, June 15, 1987]

§ 190.07-90 Vessels contracted for prior to March 1, 1968.

(a) Existing structure arrangements and materials previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original construction.

(b) Conversions, major alterations, new installations, and replacements shall comply with the applicable specifications and requirements in this subpart for new vessels.

Subpart 190.10—Means of Escape

§ 190.10-1 Application.

(a) The provisions of this subpart, with the exception of § 190.10-90, shall apply to all vessels other than non-self-propelled vessels of less than 300

gross tons, contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 190.10-90.

(c) Non-self-propelled vessels of less than 300 gross tons shall not be subject to the provisions of this subpart.

§ 190.10-5 Two means required.

(a) There shall be at least two means of escape from all general areas where the crew or scientific personnel may be quartered or normally employed. At least one of these two means of escape shall be independent of watertight doors and hatches, except for quick acting watertight doors giving final access to weather decks.

§ 190.10-10 Location.

(a) The two means of escape shall be as remote as practicable so as to minimize the possibility of one incident blocking both escapes.

§ 190.10-15 Vertical ladders not accepted.

(a) Vertical ladders and deck scuttles shall not in general be considered satisfactory as one of the required means of escape. However, where it is demonstrated that the installation of a stairway would be impracticable, a vertical ladder may be used as the second means of escape.

§ 190.10-20 No means for locking doors.

(a) No means shall be provided for locking door giving access to either of the two required means of escape except that crash doors or locking devices, capable of being easily forced in an emergency, may be employed provided a permanent and conspicuous notice to this effect is attached to both sides of the door. This paragraph shall not apply to outside doors to deckhouses where such doors are locked by key only and such key is under the control of one of the vessel's officers.

§ 190.10-25 Stairway size.

(a) Stairways shall be of sufficient width having in mind the number of persons having access to such stairs for escape purposes.

§ 190.10-30

(b) All interior stairways, other than those within the machinery spaces, shall have minimum width of 28 inches. The angle of inclination with the horizontal of such stairways shall not exceed 50°.

(c) Special consideration for relief may be given if it is shown to be unreasonable or impracticable to meet the requirements in this section.

§ 190.10-30 Dead end corridors.

(a) Dead end corridors, or the equivalent, more than 40 feet in length shall not be permitted.

§ 190.10-35 Public spaces.

(a) In all cases, public spaces having a deck area of over 300 square feet shall have at least two exits. Where practicable, these exits shall give egress to different corridors, rooms, or spaces to minimize the possibility of one incident blocking both exits.

§ 190.10-40 Access to lifeboats.

(a) The stairways, corridors, and doors shall be so arranged as to permit a ready and direct access to the various lifeboat and liferaft embarkation areas.

§ 190.10-45 Weather deck communications.

(a) Vertical communication shall be provided between the various weather decks by means of permanent inclined ladders.

§ 190.10-90 Vessels contracted for prior to March 1, 1968.

(a) Existing arrangements previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original design: *Provided*, That in no case will a greater departure from the standards of §§ 190.10-5 through 190.10-45 be permitted than presently exists. Nothing in this paragraph shall be construed as exempting any vessel from having two means of escape from all main compartments where persons on board may be quartered or normally employed.

46 CFR Ch. I (10-1-90 Edition)

Subpart 190.15—Ventilation

§ 190.15-1 Application.

(a) The provisions of this subpart, with the exception of § 190.15-90, shall apply to all vessels other than non-self-propelled vessels of less than 300 gross tons, contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 190.15-90.

(c) Non-self-propelled vessels of less than 300 gross tons shall not be subject to the provisions of this subpart.

§ 190.15-5 Vessels using fuel having a flashpoint of 110° F. or lower.

(a) Spaces containing machinery which uses, or tanks which contain, fuel having a flashpoint of 110° F. or lower shall have natural supply and mechanical exhaust ventilation as required by this section.

(b) The mechanical exhaust system shall be such as to assure the air changes as noted in Table 190.15-5(b) depending on the size of the space.

TABLE 190.15-5(b)

Size of space, cubic feet		Minute per air change
Over	Not over	
	500	2
500	1000	3
1000	1500	4
1500		5

(c) Exhaust blower motors, unless of a totally enclosed, explosion-proof type, shall be located outside of the ducts and outside of the compartment required to be ventilated. Exhaust blower motors if mounted in any compartment shall be located as high above the bilge as practicable. Blower blades shall be nonsparking with reference to their housings.

(d) Exhaust blower switches shall be located outside of any space required to be ventilated by this section, and shall be of the type interlocked with the ignition switch so that the blowers are started before the engine ignition is switched on. A red warning sign at the switch shall state that the blowers shall be operated prior to starting the

engines for a sufficient time to insure at least one complete change of air in the compartments.

(e) The area of the ducts shall be such as to limit the air velocity to a maximum of 2,000 feet per minute. Ducts may be of any shape: *Provided*, That in no case shall one cross section dimension exceed twice the other.

(f) At least two inlet ducts shall be located at one end of the compartment and they shall extend to the lowest part of the compartment or bilge on each side. Similar exhaust ducts shall be led to the mechanical exhaust system from the lowest part of the compartment or bilge on each side of the compartment at the end opposite from that at which the inlet ducts are fitted. These ducts shall be so installed that ordinary collection of water in the bilge will not close off the ducts.

(g) All ducts shall be of steel construction and reasonably gastight from end to end. The ducts shall lead as direct as possible and be properly fastened and supported.

(h) All supply ducts shall be provided with cowls or scoops having a free area not less than twice the required duct area. When the cowls or scoops are screened, the mouth area shall be increased to compensate for the area of the screen wire. Dampers shall not be fitted in the supply ducts. Cowls or scoops shall be kept open at all times except when the stress of weather is such as to endanger the vessel if the openings are not temporarily closed. Supply and exhaust openings shall not be located where the natural flow of air is unduly obstructed, or adjacent to possible sources of vapor ignition, nor shall they be so located that exhaust air may be taken into the supply vents.

(i) Provision shall be made for closing all cowls or scoops when the fixed carbon dioxide system is operated.

§ 190.15-10 Ventilation for closed spaces.

(a) All enclosed spaces within the vessel shall be properly vented or ventilated. Means shall be provided to close off all vents and ventilators.

(b) Means shall be provided for stopping all fans in ventilation systems serving the chemical laboratories, scientific laboratories, chemical store-

rooms, and machinery spaces and for closing all doorways, ventilators, and annular spaces around funnels and other openings to such spaces, from outside these spaces, in case of fire.

(c) See §§ 194.15-5 and 194.20-5 of this subchapter for ventilation of chemical laboratories, scientific laboratories, and storerooms.

§ 190.15-15 Ventilation for living spaces and quarters.

(a) All living spaces shall be adequately ventilated in a manner suitable to the purpose of the space.

(b) All spaces used as quarters for crewmembers and scientific personnel shall be ventilated by a mechanical system unless it can be shown that a natural system will provide adequate ventilation. By a natural system is meant those spaces so located that the windows, ports, skylights, etc., and doors to passageways can be kept open and thereby provide adequate ventilation under all ordinary conditions of weather.

§ 190.15-90 Vessels contracted for prior to March 1, 1968.

(a) Existing arrangements previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original design: *Provided*, That in no case will a greater departure from the standards of §§ 190.15-5 through 190.15-15 be permitted than presently exists.

Subpart 190.20—Accommodations for Officers, Crew, and Scientific Personnel

§ 190.20-1 Application.

(a) The provisions of this subpart, with the exception of § 190.20-90, shall apply to all vessels contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 190.20-90.

§ 190.20-5

§ 190.20-5 Intent.

(a) It is the intent of this subpart that the accommodations provided for officers, crew, and scientific personnel on all vessels shall be securely constructed, properly lighted, heated, drained, ventilated, equipped, located, arranged, and, where practicable, shall be insulated from undue noise and free from effluvia.

(b) Provided the intent of this subpart is met, consideration may be given by the Officer in Charge, Marine Inspection, to relax the requirements relating to the size and separation of accommodations for scientific personnel.

(c) The crew referred to in this subpart includes all persons, except the licensed officers, regularly employed on board any vessel. Where the requirements for the accommodations of licensed officers and/or scientific personnel are not otherwise specified, they shall be at least equivalent to that indicated in this subpart for the crew.

§ 190.20-10 Location of crew spaces.

(a) Crew spaces shall be located, where practicable, so that the maximum amount of fresh air and light are obtainable, having due regard to the service of the vessel and the requirements of other space users.

(b) Crew quarters shall not be located farther forward in the vessel than a vertical plane located at 5 percent of the vessel's length abaft the forward side of the stem at the designed summer load water line. However, for vessels in other than ocean or coastwise service, this distance need not exceed 28 feet. For purpose of this paragraph the length shall be as defined in § 43.15-1 of Subchapter E (Load Lines) of this chapter. No section of the deck of the crew spaces shall be below the deepest load line, except that in special cases, the Commandant may approve such an arrangement: *Provided*, That in no case shall the deck head of crew spaces other than gymnasiums, exercise rooms, and libraries be below the deepest load line.

(c) Hawse pipes or chain pipes shall not pass through crew spaces.

46 CFR Ch. I (10-1-90 Edition)

(d) There shall be no direct communication, except through solid, close fitted doors or hatches between crew spaces and chain lockers, or machinery spaces.

(e) There shall be no access, vents, or sounding tubes from fuel oil tanks opening into crew spaces, except that sounding tubes and access openings may be located in corridors.

(f) Where practicable, crew spaces shall be located entirely separate and independent of spaces allotted to licensed officers.

§ 190.20-15 Construction.

(a) All crew spaces are to be constructed in a manner suitable to the purpose for which they are intended. The bulkheads separating the crew spaces from machinery spaces, lamp and paint rooms, storerooms, drying rooms, washrooms, and toilet spaces shall be made odor-proof where deemed necessary by the Commandant.

(b) Toilet spaces, except when provided as private or semiprivate facilities, shall be so built, fitted, and situated, that no odor from them will readily enter other crew spaces.

(c) Where shell or unsheathed weather decks form boundaries of crew spaces, suitable protective coverings shall be applied to prevent formation or accumulation of moisture.

(d) Where crew spaces adjoin or are immediately above spaces such as galleys, machinery spaces or casings, donkeys boilerrooms, etc., they shall be suitably protected from the heat.

(e) The interior sides and deck heads of crew spaces shall be covered with enamel, paint, or other material light in color.

(f) Crew spaces shall be properly drained where considered necessary.

(g) All washrooms and toilet rooms shall be properly drained and so constructed and arranged that they can be kept in a clean, workable, and sanitary condition. The scuppers shall be located in the lowest part of the space, due consideration being given to the average trim of the vessel.

20-20 Sleeping accommodations.

Arrangements. (1) Where practicable, separate sleeping accommodations are to be provided for the deck, engine, and steward groups of the vessel.

Where practicable, each licensed vessel shall be provided with a separate stateroom.

Size. (1) Sleeping accommodations for the crew shall be divided into berths, no one of which shall berth more than four persons.

Each room shall be of such size that there are at least 30 square feet of deck area and a volume of at least 150 cubic feet for each person accommodated. The clear head room shall be not less than 6 feet 3 inches. In measuring sleeping quarters allocated to members of vessels, any equipment contained therein for the use of the occupants is not to be deducted from the total volume or from the deck area.

(2) Sleeping accommodations for scientific personnel shall be divided into berths, no one of which shall berth more than six persons.

(3) Each room for scientific personnel shall be of such size that there are at least 20 square feet of deck area and a volume of at least 150 cubic feet for each person accommodated. The clear head room shall be not less than 6 feet 3 inches. In measuring sleeping accommodations any equipment contained therein for the use of the occupants is not to be deducted from the total volume or from the deck area.

Equipment. (1) Each person shall have a separate berth and not more than one berth shall be placed above another. The berths shall have a framework of metal or other hard, smooth material not likely to corrode harbor vermin, and shall be so arranged that they provide ample room for easy occupancy. The overall size of each berth shall not be less than 30 inches wide by 76 inches long, except by special permission of the Commandant. Where berths adjoin, they shall be divided by a partition not less than 6 inches in height. Where two tiers of berths are fitted, the bottom of the upper must not be less than 12 inches above the deck, and the bottom of the lower must not be less than 2 feet 6 inches both from the bottom of the

lower and from the deck overhead. The berths shall not be obstructed by pipes, ventilating ducts, or other installations.

(2) A locker of metal or other hard, smooth material shall be provided for each person accommodated in a room. Each locker shall be not less than 300 square inches in cross section area and 60 inches high. It shall be so placed as to be readily accessible. The interior of the locker shall be so arranged as to facilitate the proper stowage of clothes.

§ 190.20-25 Washrooms and toilet rooms.

(a) There shall be provided at least one toilet, one washbasin, and one shower or bathtub for each eight members or portion thereof in the crew to be accommodated. The crew to be accommodated shall include all members who do not occupy rooms to which private or semiprivate facilities are attached.

(b) Under the following conditions, the toilet and washing facilities for the specific groups of the crew indicated shall be located in spaces separate from the facilities for other crewmembers; and shall be provided for that group in the ratios required by paragraph (a) of this section.

(1) The members of the engine department, where their number, exclusive of licensed officers and others separately provided for, exceeds eight.

(2) The members of the steward's department, exclusive of those separately provided for, where their number exceeds eight.

(c) The toilet rooms and washrooms shall be located convenient to the sleeping quarters of the crew to which they are allotted but shall not open directly into such quarters except when they are provided as private or semiprivate facilities.

(d) All washbasins, showers, and bathtubs shall be equipped with proper plumbing, including hot and cold running water. Washbasins may be located in the crew sleeping quarters.

(e) The toilet rooms shall be separate from the washrooms and at least one washbasin shall be fitted in each toilet room, except where private or

§ 190.20-30

semiprivate facilities are provided and washbasins are installed in the sleeping rooms.

(1) All toilets shall be installed with proper plumbing for flushing. Toilets shall be provided with seats of the open front type. Urinals may be fitted in toilet rooms, if desired, but no reduction in the required number of toilets will be made therefor.

(2) Where more than one toilet is located in a space or compartment, each toilet shall be separated by partitions, which shall be open at the top and bottom for ventilation and cleaning purposes.

[CGFR 67-83, 33 FR 1135, Jan. 27, 1968, as amended by CGD 73-119R, 38 FR 20449, Aug. 1, 1973]

§ 190.20-30 Messrooms.

(a) Messrooms shall be located as near to the gallery or suitably equipped serving pantry, as is practicable except where messroom is equipped with a steam table. The messrooms shall be of such size as to seat the number of persons normally scheduled to be eating at one time.

(b) Messrooms shall be properly equipped with tables, seats, and other necessary equipment and shall be so arranged as to permit access to each seat.

§ 190.20-35 Hospital space.

(a) Except as specifically modified by paragraph (f) of this section, each vessel, which in the ordinary course of its voyage is more than 3 days' duration from port and which carries a crew of 12 or more, shall be provided with a hospital space. This space shall be situated with due regard to the comfort of the sick so that they may receive proper attention in all weathers.

(b) The hospital shall be suitably separated from other spaces and shall be used for the care of the sick and for no other purpose.

(c) The entrance shall be of such width and in such a position as to admit a stretcher case readily. Berths shall be of metal and may be in double tier, provided the upper berth is hinged and arranged to be secured clear of the lower berth when not in use. At least one berth shall be so ar-

46 CFR Ch. I (10-1-90 Edition)

ranged that it can be made accessible from both sides when necessary.

(d) The hospital shall be fitted with berths in the ratio of 1 berth to every 12 members of the crew or portion thereof who are not berthed in single occupancy rooms, but the number of berths need not exceed six. Where all single occupancy rooms are provided the requirement for a separate hospital room may be withdrawn: *Provided*, That one stateroom is fitted with a bunk accessible from both sides.

(e) The hospital shall have a toilet, washbasin and bathtub or shower conveniently situated. Other necessary suitable equipment of such character as clothes locker, table, seat, etc., shall be provided.

(f) On vessels in which the crew is berthed in single occupancy staterooms a hospital space will not be required: *Provided*, That one room shall be designated and fitted for use as a treatment and/or isolation room. Such room shall meet the following standards:

(1) The room must be ready for immediate medical use;

(2) The room must be accessible to stretcher cases;

(3) The room must have a single berth or examination table so arranged that it can be accessible from both sides when necessary; and,

(4) A wash basin with hot and cold running water must be installed either in or immediately adjacent to the space and other required sanitary facilities must be conveniently located.

§ 190.20-40 Other spaces.

(a) Sufficient facilities, depending upon the number of the crew, shall be provided where the crew may wash their own clothes. There shall be at least one tub or sink, fitted with the necessary plumbing, including hot and cold running water.

(b) Clothes drying facilities or space shall be provided for the needs of the crew.

(c) Recreation accommodations shall be provided. Where messrooms are used for this purpose, they shall be suitably planned.

20-45 Lighting.

All crew spaces shall be adequately lighted in accordance with the requirements of Subchapter J (Electrical Engineering) of this chapter.

R 67-83, 33 FR 1125, Jan. 27, 1968, as amended by CGD 74-125A, 47 FR 15279, 1982]

20-50 Heating.

All crew spaces shall be adequately heated in a manner suitable to the purpose of the space.

The heating system will be considered satisfactory if it is capable of maintaining a minimum temperature of 60° F. under normal operating conditions without undue curtailment of ventilation.

Radiators and other heating apparatus shall be so placed, and where necessary shielded, as to avoid risk of danger, or discomfort to the occupants. Pipes leading to radiators or heating apparatus shall be lagged where those pipes create a hazard to persons occupying the space.

20-55 Insect screens.

Except in such areas as are considered to be insect free, provision shall be made to protect the quarters of crew and scientific personnel against the admission of insects. This may be accomplished by the fitting of suitable screens to ventilating skylights, airports, ventilators, and doors of unscreened spaces and the opening of such spaces or by other methods. Insect screens are not required in air conditioned quarters nor for windows, airports, and doors that are normally kept closed.

20-90 Vessels contracted for prior to March 1, 1968.

Existing structures, arrangements, materials, and facilities previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original construction provided. That in no case will a great departure from the standards of

§§ 190.20-5 through 190.20-55 be permitted than presently exists.

Subpart 190.25—Rails and Guards

§ 190.25-1 Application.

(a) The provisions of this subpart with the exception of § 190.25-90, apply to all vessels contracted for on or after July 1, 1969.

(b) Vessels contracted for prior to July 1, 1969 shall meet the requirements of § 190.25-90.

[CGFR 69-72, 34 FR 17503, Oct. 29, 1969]

§ 190.25-5 Where rails required.

(a) All vessels shall have efficient guard rails or bulwarks on decks and bridges. The height of rails or bulwarks shall be at least 39½ inches from the deck. At exposed peripheries of the freeboard and superstructure decks, the rails shall be in at least three courses, including the top. The opening below the lowest course shall not be more than 9 inches. The courses shall not be more than 15 inches apart. In the case of ships with rounded gunwales the guard rail supports shall be placed in the flat of the deck. On other decks and bridges the rails shall be in at least two courses, including the top, approximately evenly spaced. If it can be shown to the satisfaction of the Officer in Charge, Marine Inspection, that the installation of rails of such height will be unreasonable and impracticable, having regard to the business of the vessel, rails of a lesser height or in some cases grab rails may be accepted and inboard rails may be eliminated if the deck is not generally accessible.

(b) Where it can be shown to the satisfaction of the Commandant that a vessel is engaged exclusively in voyages of a sheltered nature, the provisions of paragraph (a) of this section may be relaxed.

[CGFR 69-72, 34 FR 17503, Oct. 29, 1969]

§ 190.25-10 Storm rails.

(a) On vessels in ocean and coastwise service, suitable storm rails shall be installed in all passageways and at the deckhouse sides where persons on board might have normal access.

§ 190.25-15

Storm rails shall be installed on both sides of passageways which are 6 feet or more in width.

§ 190.25-15 Guards in dangerous places.

(a) Suitable hand covers, guards, or rails shall be installed in way of all exposed and dangerous places such as gears, machinery, etc.

§ 190.25-90 Vessels contracted for prior to July 1, 1969.

(a) Existing structures, arrangements, materials, and facilities previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original construction: *Provided*, That in no case will a greater departure from the standards of §§ 190.25-5 through 190.25-15 be permitted than presently exists.

[CGFR 67-83, 33 FR 1125, Jan. 27, 1968, as amended by CGFR 69-72, 34 FR 17503, Oct. 29, 1969]

PART 191—[RESERVED]

PART 192—LIFESAVING EQUIPMENT

Subpart 192.01—Application

Sec.

192.01-1 General.

192.01-3 Incorporation by reference.

Subpart 192.05—General Provisions Pertaining to Lifesaving Equipment

192.05-1 Equipment of an approved type.

192.05-5 Equipment installed but not required.

192.05-10 Primary lifesaving equipment.

Subpart 192.10—Lifeboats, Liferrafts, Lifeboats, Buoyant Apparatus, and Rescue Boats

192.10-1 Application.

192.10-5 Type of lifeboats, liferafts, lifeboats, buoyant apparatus, and rescue boats required.

192.10-10 Requirements for vessels in ocean or coastwise service.

192.10-15 Requirements for seagoing barges.

46 CFR Ch. I (10-1-90 Edition)

Sec.

192.10-40 Requirements for vessels in Great Lakes; lakes, bays, and sounds, or river service.

192.10-55 Inflatable liferafts as an alternate for lifeboats, other liferafts, lifeboats, and buoyant apparatus on certain vessels not on an international voyage.

192.10-90 Vessels contracted for prior to March 1, 1968.

Subpart 192.15—Stowage and Marking of Lifeboats, Liferrafts, Lifeboats, and Buoyant Apparatus

192.15-1 Application.

192.15-5 General.

192.15-10 Stowage.

192.15-15 Marking.

192.15-90 Vessels contracted for prior to March 1, 1968.

Subpart 192.20—Equipment for Lifeboats, Liferrafts, Lifeboats, and Buoyant Apparatus

192.20-1 Application.

192.20-5 General.

192.20-10 Required equipment for lifeboats.

192.20-15 Description of equipment for lifeboats.

192.20-20 Required equipment for liferafts.

192.20-25 Description of equipment for liferafts.

192.20-30 Required equipment for lifeboats and buoyant apparatus.

192.20-35 Description of equipment for lifeboats and buoyant apparatus.

192.20-90 Vessels contracted for prior to March 1, 1968.

Subpart 192.25—Davits for Lifeboats

192.25-1 Application.

192.25-5 General.

192.25-10 Approved davits and lifelines for davit spans.

192.25-90 Vessels contracted for prior to March 1, 1968.

Subpart 192.30—Lifeboat Winches

192.30-1 Application.

192.30-5 General.

192.30-10 Number and type required.

192.30-15 Installation.

192.30-90 Vessels contracted for prior to March 1, 1968.

Subpart 192.33—Blocks and Falls for Lifeboats

192.33-1 Application.

192.33-5 General.

192.33-10 Installations where lifeboat winches are used.

192.33-15 Installations where lifeboat winches are not used.

§ 192.01-3

33-90 Vessels contracted for prior to March 1, 1968.

Subpart 192.35—Installation of Lifeboats, Davits, and Winches

- 35-1 Application.
- 35-5 Tests and examinations.

Subpart 192.40—Life Preservers

- 40-1 Application.
- 40-5 General.
- 40-10 Number required.
- 40-15 Distribution and stowage.
- 40-25 Retroreflective material.
- 40-90 Vessels contracted for prior to March 1, 1968.

Subpart 192.41—Exposure Suits

- 41-1 Applicability.
- 41-5 Number and type required.
- 41-10 Stowage containers.

Subpart 192.42—Personal Flotation Device Lights and Whistles

- 42-1 Personal flotation device lights.
- 42-5 Whistles.

Subpart 192.43—Ring Life Buoys and Water Lights

- 43-1 Application.
- 43-5 General.
- 43-10 Number required.
- 43-15 Distribution and securing.
- 43-90 Vessels contracted for prior to March 1, 1968.

Subpart 192.45—Line-Throwing Appliances

- 45-1 Application.
- 45-5 General.
- 45-10 Type required.
- 45-15 Equipment for line-throwing appliances.
- 45-20 Accessibility.
- 45-25 Service recommendations.
- 45-90 Vessels contracted for prior to March 1, 1968.

Subpart 192.50—Embarkation Aids

- 50-1 Application.
- 50-5 Ladders.
- 50-7 Embarkation aids into inflatable liferafts.
- 50-10 Illumination of lifeboat launching operations.
- 50-15 Illumination for inflatable life raft launching operations.
- 50-90 Vessels contracted for prior to March 1, 1968.

Sec.

Subpart 192.55—Portable Radio Apparatus

- 192.55-1 Required on international voyage.

Subpart 192.60—Ship's Distress Signals

- 192.60-1 Application.
- 192.60-5 Vessels in ocean or coastwise service.
- 192.60-10 Vessels in Great Lakes service.

Subpart 192.65—Emergency Position Indicating Radiobeacon (EPIRB)

- 192.65-1 Emergency position indicating radiobeacon (EPIRB).

AUTHORITY: 46 U.S.C. 2213, 3306, 5115; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGFR 67-83, 33 FR 1135, Jan. 27, 1968, unless otherwise noted.

Subpart 192.01—Application

§ 192.01-1 General.

(a) The provisions of this part shall apply to all vessels other than non-self-propelled vessels of less than 300 gross tons, unless otherwise specifically noted in this part.

(b) Non-self-propelled vessels of less than 300 gross tons shall not be subject to the provisions of this part except for life preservers required by Subpart 192.40.

§ 192.01-3 Incorporation by reference.

(a) Certain materials are incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a). To enforce any edition other than the one listed in paragraph (b) of this section, notice of the change must be published in the FEDERAL REGISTER and the material made available to the public. All approved material is on file at the Office of the Federal Register, Washington, DC 20408, and at the U.S. Coast Guard, Marine Technical and Hazardous Materials Division, 2100 Second Street SW., Washington, DC 20593-0001, and is available from the address indicated in paragraph (b).

(b) The material approved for incorporation by reference in this part, and the section affected is:

§ 192.05-1

AMERICAN SOCIETY FOR TESTING AND
MATERIALS

1916 Race St., Philadelphia, PA 19103.
ASTM F1014-1986 Standard Specification
for Flashlights on Vessels.
Sections affected—192.20-15(j).

NOTE: All other documents referenced in
this part are still in effect.

[CGD 82-042, 53 FR 17706, May 18, 1988]

**Subpart 192.05—General Provisions
Pertaining to Lifesaving Equipment**

§ 192.05-1 Equipment of an approved
type.

(a) Where equipment in this part is
required to be of an approved type,
such equipment requires the specific
approval of the Commandant. Such
approvals are published in the FEDERAL
REGISTER, and in addition, are con-
tained in Coast Guard publication
CG-190, "Equipment Lists."

(b) Specifications for many of the
items required to be of an approved
type have been promulgated and are
contained in Subchapter Q (Specifica-
tions) of this chapter. In general, such
specifications are of interest only to
the manufacturer of specific items of
equipment.

§ 192.05-5 Equipment installed but not re-
quired.

(a) Where items of lifesaving equip-
ment are not required, but are in-
stalled, such equipment and its instal-
lation shall meet the requirements of
this part.

§ 192.05-10 Primary lifesaving equipment.

(a) The term "primary lifesaving
equipment" means a lifeboat or an ac-
ceptable substitute. The acceptable
substitutes may include liferafts, life-
floats, rescue boats, and buoyant appa-
ratus under certain conditions. Life
preservers and ring life buoys are not
included in the definition of "primary
lifesaving equipment."

**Subpart 192.10—Liferafts, Liferafts,
Lifeboats, Buoyant Apparatus,
and Rescue Boats**

§ 192.10-1 Application.

(a) Except as otherwise provided in
this section, the provisions of this sub-

46 CFR Ch. I (10-1-90 Edition)

part shall apply to all vessels contract-
ed for on or after March 1, 1968.

(b) Vessels contracted for prior to
March 1, 1968, shall meet the require-
ments of § 192.10-90.

(c) In the case of special types of
vessels subject to the International
Convention for Safety of Life at Sea,
1974, which are not specifically treat-
ed in this subpart, the Commandant
may give special consideration as to
lifesaving equipment requirements to
the extent permitted by the Interna-
tional Convention for Safety of Life at
Sea, 1974.

[CGFR 67-83, 33 FR 1135, Jan. 27, 1968, as
amended by CGD 90-008, 55 FR 30665, July
26, 1990]

§ 192.10-5 Type of liferafts, liferafts, life-
floats, buoyant apparatus, and rescue
boats required.

(a) *Liferafts.* (1) All liferafts shall
be of an approved type, constructed in
accordance with Subpart 160.035 of
Part 160 of Subchapter Q (Specifica-
tions) of this chapter except as speci-
fically noted in this part.

(2) All liferafts certified to carry 60
or more but not over 100 persons shall
be either motor liferafts or shall be
fitted with an approved type of hand-
propelling gear. Liferafts carrying
more than 100 persons shall be motor
liferafts.

(3) A Class 1 motor liferaft is one
that is fitted with a compression-igni-
tion engine, is capable of being readily
started in all conditions, and has suffi-
cient fuel for 24 hours continuous op-
eration. The speed ahead in smooth
water when loaded with its full com-
plement of persons and equipment
shall be at least 6 knots.

(4) Except as further modified in
this subparagraph, all liferafts, except
those installed on vessels in river serv-
ice, shall be fitted with suitable disen-
gaging apparatus consisting of fixed
hooks in the liferaft or mechanical
disengaging apparatus. Mechanical
disengaging apparatus, if fitted, shall
be of an approved type, constructed in
accordance with Subpart 160.033 of
Subchapter Q (Specifications) of this
chapter.

(i) All liferafts installed on ocean,
coastwise, or Great Lakes vessels of

er 3,000 gross tons shall be fitted with mechanical disengaging apparatus so arranged as to make it possible the lifeboats to be launched with their full complement of persons and equipment while such vessels are underway or stopped, and for both ends the lifeboat to be released simultaneously under tension or not by one person. Simultaneous release shall be effected by partially rotating a shaft which shall be continuous and extended from points of contact with the hooks.

(i) All lifeboats installed on any particular vessel shall be fitted with the same type of disengaging apparatus.

(ii) On small vessels, the Commandant may approve means other than those previously mentioned to agree with the needs of a particular vessel.

(b) *Liferafts.* (1) All rigid type liferafts shall be of an approved type, constructed in accordance with Subpart 160.018 of Subchapter Q (Specifications) of this chapter. Type A liferafts shall be stowed on the standard liferaft skids required by § 192.15-10(c)(1) unless specifically noted otherwise. Rigid type liferafts shall not be used as required equipment on vessels on an international voyage.

(2) An inflatable liferaft must meet the following:

(i) The liferaft must be approved under Subpart 160.051 of this chapter.

(ii) Except as required in paragraph (X)(2)(iii) of this section, the liferaft must be marked in accordance with 160.051-8 of this chapter.

(iii) After January 1, 1976 on vessels certificated for Great Lakes service and after January 1, 1980 on other certificated vessels, the liferaft must show on or near the liferaft's nameplate, and the liferaft's container must show on or near the plate, marking approved by a Coast Guard inspector that is—

(A) An approval number consisting of "160.051/" followed by a number that is greater than 49 followed by a revision number (e.g. 160.051/50/1); or

(B) An approval number consisting of "160.051/" followed by a number that is smaller than 50 that is followed by a revision number (e.g. 160.051/48/1), the words "MOD. TEMP.", a Coast Guard inspector's initials, and the

date that an inspector found that the liferaft met § 160.051-5(c)(4) of this chapter.

(3) On vessels on an international voyage, each inflatable liferaft shall have a carrying capacity of not less than 6 nor more than 25 persons.

(c) *Lifefloats.* All lifefloats shall be of an approved type, constructed in accordance with Subpart 160.027 of Subchapter Q (Specifications) of this chapter.

(d) *Buoyant apparatus.* All buoyant apparatus shall be of an approved type constructed in accordance with Subpart 160.010 of Part 160 of Subchapter Q (Specifications) of this chapter.

(e) *Rescue boats.* In general, a suitable rescue boat shall be a small lightweight boat of rigid construction, with built-in buoyancy and capable of being readily launched and easily maneuvered. Also it shall be of adequate proportion to permit taking an unconscious person on board without capsizing. A rescue boat and its installation shall be acceptable to the Officer in Charge, Marine Inspection, as suitable for the rescue of persons accidentally falling over the side, or for similar emergency purposes. The size, shape, installation, and other factors of suitability will be determined with due consideration of the size, arrangement, intended service, and crew requirements of the vessel on which it is to be installed. For protected waters, a rescue boat constructed in accordance with Subpart 160.056 of Subchapter Q (Specifications) of this chapter is acceptable in meeting the intent of this paragraph. For exposed waters, a more seaworthy rescue boat may be required, but in no case shall more than one approved lifeboat suitable for rescue work be required.

[CGFR 67-83, 33 FR 1135, Jan 27, 1968, as amended by CGFR 68-65, 33 FR 19993, Dec. 28, 1968; CGD 75-040, 40 FR 58455, Dec. 17, 1975]

§ 192.10-10 Requirements for vessels in ocean or coastwise service.

(a) All vessels shall be provided with sufficient lifeboats on each side of the vessel to accommodate all persons on board.

§ 192.10-15

(b) Lifeboats shall be not less than 24 feet in length, except where owing to the size of the vessel, or for other reasons, the Commandant considers the carriage of such lifeboats to be unreasonable or impracticable. However, in no case shall lifeboats of less than 16 feet in length be used.

(c) All vessels of 1,600 gross tons and over on an international voyage shall carry at least one motor propelled lifeboat of Class 1.

(d) In addition to the lifeboats required by paragraph (a) of this section, each vessel on an international voyage and each vessel in ocean or coastwise service must carry liferafts of sufficient aggregate capacity to accommodate at least 50 percent of the persons on board. Those vessels that have widely separated accommodation or working spaces must have at least one liferaft in each such location.

(e) Inflatable liferafts may be substituted for lifeboats on certain vessels not on an international voyage in accordance with § 192.10-55.

(f) Except for vessels on an international voyage, vessels which meet one compartment subdivision and damage stability requirements and whose structural fire protection is in accordance with the requirements for new vessels contained in Subpart 190.07 of Part 190 of this subchapter may carry primary lifesaving equipment of 100 percent in boats and 25 percent in inflatable liferafts in lieu of that primary lifesaving equipment required by paragraphs (a) and (d) of this section.

[CGFR 67-83, 33 FR 1135, Jan. 27, 1968, as amended by CGD 79-072, 46 FR 28169, May 26, 1981]

§ 192.10-15 Requirements for seagoing barges.

(a) All manned seagoing barges shall be provided with approved lifeboats with sufficient capacity for all persons on board.

(b) Inflatable liferafts may be substituted for lifeboats on certain barges in accordance with § 192.10-55.

§ 192.10-40 Requirements for vessels in Great Lakes; lakes, bays, and sounds; or river service.

(a) All vessels, except those on an international voyage, shall be provided

46 CFR Ch. I (10-1-90 Edition)

with lifeboats and liferafts as required by Table 192.10-40(a).

TABLE 192.10-40(a)—LIFEBOATS AND LIFERAFTS REQUIRED ON VESSELS IN GREAT LAKES AND LAKES, BAYS, AND SOUNDS, AND RIVER SERVICE

	Percent
Percentage of persons to be accommodated.....	100
Percentage of required equipment in lifeboats.....	50
Percentage of required equipment which may be in Type A or Type B liferafts.....	50

(b) Inflatable liferafts may be substituted for lifeboats and liferafts on certain vessels in accordance with § 192.10-55.

(c) All vessels on an international voyage shall meet the applicable requirements of § 192.10-10.

§ 192.10-55 Inflatable liferafts as an alternate for lifeboats, other liferafts, lifeboats, and buoyant apparatus on certain vessels not on an international voyage.

(a)(1) On all vessels inflatable liferafts may be permitted as substitutes for other types of liferafts, lifeboats, and buoyant apparatus wherever they may be required.

(2) The capacity of inflatable liferafts carried in place of other liferafts, lifeboats, and buoyant apparatus shall be at least equivalent to that required of the equipment for which substitution is made.

(3) The substitution of inflatable liferafts shall not be made without prior approval of the Officer in Charge, Marine Inspection.

(b) On all vessels less than 3,000 gross tons the substitution of liferafts for lifeboats may be permitted as follows:

(1)(i) On all vessels under 500 gross tons, inflatable liferafts may be substituted for all required lifeboats.

(ii) The total capacity of the inflatable liferafts shall be at least equal to the total number of persons that the lifeboats would have been required to accommodate. Partial substitution is permissible provided the aggregate lifeboat and inflatable liferaft capacity is sufficient to accommodate the re-

required number of persons, as indicated above.

(iii) Vessels certificated for ocean, coastwise, or Great Lakes service, where substitution of inflatable lifeboats is made, at least a 16-foot approved lifeboat shall be provided for rescue purposes. Vessels certificated for other than ocean, coastwise or Great Lakes service where substitution of inflatable lifeboats is made, an approved lifeboat or a rescue boat as described in § 192.10-5(e) shall be provided. In the case of partial substitution, an approved lifeboat may serve as the rescue boat.

(2)(i) On all vessels of 500 gross tons and upward to 1,600 gross tons, inflatable lifeboats may be substituted for all required lifeboats provided one approved lifeboat of a size acceptable to the Officer in Charge, Marine Inspection, suitable for rescue purposes, is installed.

(ii) The aggregate lifeboat and inflatable lifeboat capacity shall be at least equal to the total number of persons that the lifeboats would have been required to accommodate.

(iii) The launching arrangement and location of the lifeboat to be used as rescue boat shall be such that it can be readily launched and shall be to the satisfaction of the Officer in Charge, Marine Inspection.

(3)(i) On all vessels of 1,600 gross tons and upward to 3,000 gross tons, inflatable lifeboats may be substituted for all except two of the required lifeboats. These lifeboats shall be of a size acceptable to the Officer in Charge, Marine Inspection, and shall be suitable for rescue purposes. In all cases, two approved lifeboats, one on each side, shall be provided.

(ii) The aggregate lifeboat and inflatable lifeboat capacity shall be at least equal to the total number of persons that the lifeboats, for which substitutions are made plus those remaining on board, would have been required to accommodate.

(4) The substitution of inflatable lifeboats for lifeboats shall not be made without prior approval of the Officer in Charge, Marine Inspection. However, for new construction this approval may be granted by the Commandant.

(c) On all seagoing barges of 100 gross tons and over an inflatable lifeboat may be substituted for the required lifeboat, the total capacity of which shall be sufficient to accommodate all persons on board. Where substitution of inflatable lifeboats is made, a suitable rescue boat shall be provided.

(d) The Commandant may give special consideration to the substitution of approved inflatable lifeboats for required lifeboats on vessels of 3,000 gross tons and over.

§ 192.10-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 192.10-5 through 192.10-55 shall be complied with insofar as the number and general type of lifesaving equipment is concerned.

(2) Existing items of lifesaving equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 192.10-5 through 192.10-55 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be permitted to the same standards as the original installation. However, all new installations or major replacements shall meet the applicable specifications or requirements for new vessels.

Subpart 192.15—Stowage and Marking of Lifeboats, Lifeboats, Lifeboats, and Buoyant Apparatus

§ 192.15-1 Application.

(a) The provisions of this subpart, with the exception of § 192.15-90, shall apply to all vessels contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 192.15-90.

§ 192.15-5

46 CFR Ch. I (10-1-90 Edition)

§ 192.15-5 General.

(a) The lifeboats, liferafts, lifeboats, and buoyant apparatus shall be readily available in the case of emergency, and shall be kept in good working order and available for immediate use at all times when the vessel is being navigated and, insofar as reasonable and practicable, while the vessel is not being navigated.

(b) The decks on which lifeboats, liferafts, lifeboats, and buoyant apparatus are carried shall be kept clear of any obstructions which would interfere with the immediate launching of the lifesaving appliances.

§ 192.15-10 Stowage.

(a) *General.* Lifeboats, liferafts, lifeboats, and buoyant apparatus shall be stowed in such a manner that:

(1) They are capable of being launched in the shortest possible time.

(2) They shall not impede the launching or handling of other lifesaving appliances.

(3) They shall not impede the marshalling of persons at the embarkation stations, or their embarkation.

(4) They shall be capable of being put in the water safely and rapidly even under unfavorable conditions of list and trim.

(b) *Lifeboat stowage.* (1) Every lifeboat shall be attached to a separate set of davits.

(2) Suitable access to the lifeboats shall be provided to enable the crew to prepare the lifeboats for launching.

(3) Lifeboats shall be so stowed that embarkation into them may be made rapidly and in good order.

(4) Lifeboats shall not be stowed in the bows of the vessel nor as far aft as to be endangered by the propellers or overhang of the stern. The clear horizontal distance between the after lifeboat davit and the propeller shall be not less than 1.5 times the length of the lifeboat without special acceptance by the Commandant. Where the vessel has extreme shape or where other factors are present affecting the clear launching of the lifeboat, the Commandant may require this distance to be increased.

(5) Lifeboats shall be so stowed that it shall not be necessary to lift them in order to swing out the davits, except

on small vessels where such requirement is unreasonable and impracticable in the opinion of the Officer in Charge, Marine Inspection.

(6) Means shall be provided for bringing the lifeboats against the ship's side and holding them there so that persons may be safely embarked.

(7) On vessels certificated for ocean or coastwise service, lifeboats shall be fitted with skates or other suitable means to facilitate launching against an adverse list of up to 15 degrees. However, skates may be dispensed with if, in the opinion of the Commandant, the arrangements are such as to insure that the lifeboats can be satisfactorily launched without such skates.

(8) On vessels in ocean and coastwise service, where applicable, means shall be provided outside the machinery space to prevent the discharge of water into the lifeboats while they are being lowered. This shall consist of baffles to deflect the water down the vessel's side, or reach rods, or other means to close the discharge openings.

(c) *Liferaft stowage.* (1) Type A liferafts shall be stowed on standard skids, constructed in accordance with Subpart 160.042 of Part 160 of Subchapter Q (Specifications) of this chapter.

(2) Type B liferafts shall be stowed in such a manner that they may be readily launched.

(3) Inflatable liferafts shall be stowed in such a manner that they will float free in the event of the vessel sinking. Stowage and launching arrangements will be to the satisfaction of the Officer in Charge, Marine Inspection.

(d) *Life float and buoyant apparatus stowage.* Each life float and buoyant apparatus must be secured to the vessel by a painter and a float-free link.

(1) The float-free link must be—

(i) Certified to meet Subpart 160.073 of this Chapter,

(ii) Of proper strength for the size of the life float or buoyant apparatus as indicated on its identification tag, and

(iii) Secured to the painter at one end and secured to the vessel on the other end.

(2) The means by which the float-free link is attached to the vessel must—

(i) Have a breaking strength of at least the breaking strength of the painter,

(ii) If synthetic, be of a dark color or of a type certified to be resistant to deterioration from ultraviolet light, and

(iii) If metal, be corrosion resistant.

(3) If the life float or buoyant apparatus does not have a painter attachment fitting, a means for attaching the painter must be provided by a wire or line that—

(i) Encircles the body of the device,

(ii) Will not slip off,

(iii) Has a breaking strength that is at least the breaking strength of the painter, and

(iv) If synthetic, is of a dark color or is of a type certified to be resistant to deterioration from ultraviolet light.

(4) The float-free link described in paragraphs (d)(1) and (d)(2) of this section is not required if the vessel operates solely in waters which have a depth less than the length of the painter.

(5) If the vessel carries more than one lifeboat or buoyant apparatus, the lifeboats and buoyant apparatus may be grouped and each group secured by a single painter, provided that—

(i) The combined weight of each group of lifeboats and buoyant apparatus does not exceed 185 kg (400 lb.),

(ii) Each lifeboat and buoyant apparatus is individually attached to the painter by a line that meets § 192.20-15 (d)(2) and (d)(3) and which is long enough so that each can float without contacting any other lifeboat or buoyant apparatus in the group, and

(iii) The strength of the float-free link under paragraph (d)(1)(ii) of this section and the strength of the painter under § 192.20-35(d)(2) is determined by the combined capacity of the group of lifeboats and buoyant apparatus.

(6) Stowing of lifeboats and buoyant apparatus must allow easy launching. Lifeboats and buoyant apparatus over 15 kg (400 lb.) must not require lifting before launching.

(7) Lifeboats and buoyant apparatus must not be secured to the vessel except by the painter and by lashings which can be easily released or hy-

draulic releases. They must not be stowed in more than four tiers. When stowed in tiers, the separate units must be kept apart by spacers.

(8) There must be means to prevent shifting.

(e) Each hydraulic release used in the installation of any liferaft, inflatable liferaft, lifeboat, or buoyant apparatus must meet Subpart 160.062 of this chapter.

[CGFR 67-83, 33 FR 1135, Jan. 27, 1968, as amended by CGFR 68-32, 33 FR 5729, Apr. 12, 1968; CGD 79-187, 47 FR 41379, Sept. 20, 1982]

§ 192.15-15 Marking.

(a) Lifeboats, liferafts, lifeboats, and buoyant apparatus shall be marked as required by §§ 196.37-37 and 196.37-40 of this subchapter.

§ 192.15-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) The provision of §§ 192.15-5 through 192.15-15 shall be met except as further set forth in this paragraph.

(2) The requirements of § 192.15-10(b)(7) shall apply unless in the opinion of the Officer in Charge, Marine Inspection, it is unreasonable or impracticable, or the arrangement or construction of the vessel make the use of skates or similar appliances unnecessary.

(b) Existing arrangements or construction previously approved will be considered satisfactory so long as they are maintained in a good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original design provided that in no case will a greater departure from the standards of §§ 192.15-5 through 192.15-15 be permitted than presently exists.

Subpart 192.20—Equipment for Lifeboats, Liferafts, Lifeboats, and Buoyant Apparatus

§ 192.20-1 Application.

(a) The provisions of this subpart, with the exception of § 192.20-90, shall

§ 192.20-5

46 CFR Ch. I (10-1-90 Edition)

apply to all vessels contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 192.20-90.

§ 192.20-5 General.

(a) Equipment for lifeboats, liferafts, lifefloats, and buoyant apparatus shall be of good quality, efficient for the purpose they are intended to serve, and kept in good condition.

(b) Lifeboats, liferafts, lifefloats, and buoyant apparatus shall be fully equipped before the vessel is navigated and the equipment shall remain in such lifesaving appliances throughout the voyage, except as provided in § 196.15-45(e) of this subchapter.

(c) It shall be unlawful to stow in any lifeboat, liferaft, lifefloat, or buoyant apparatus any article not required

by this subpart unless such article be properly stowed so as not to reduce the seating capacity or space available to the occupants and so as not to adversely affect the seaworthiness of such appliances or, in the case of lifeboats, overload the davits or winches.

(d) Loose equipment, except boat hooks in lifeboats, shall be securely lashed to the lifesaving appliance to which it belongs.

§ 192.20-10 Required equipment for lifeboats.

(a) The lifeboats for all vessels shall be equipped in accordance with Table 192.20-10(a). For a description of the items contained in this table, and the units comprising the items, see the applicable paragraphs of § 192.20-10. The letter identification prefixing the item in the table corresponds to the paragraph designations in § 192.20-10.

TABLE 192.20-10(a)

Letter identification	Item	Ocean and coastwise		Great Lakes	Lake bay and sound and river
		Other than seagoing barges	Seagoing barges		
a	Bailer	1	None	1	1
b	Bilge pump	1 ¹	None	None	None
c	Boathooks	2	2	1	1
d	Bucket	2	1	1	1
e	Compass and mounting	1	None	None	None
f	Ditty bag	1	None	None	None
g	Drinking cups	1	1	None	None
h	Fire extinguishers (motor-propelled lifeboats only)	2	2	2	2
i	First-aid kit	1	None	None	None
j	Flashlight	1	None	1	1
k	Harpoons	2	None	2	2
l	Heaving line	2	None	None	None
m	Jackknife	1	1	None	None
n	Ladder, lifeboat gunwale	1	None	None	None
o	Lantern	1	1	1	1
p	Lifeline	1	1	1	1
q	Life preservers	2	2	2	2
r	Locker	1	None	1	1
s	Mast and sail (oar-propelled lifeboats only)	1	None	None	None
t	Matches (boxes)	2	2	1	1
u	Milk, condensed (pounds per person)	1	None	None	None
v	Mirrors, signaling	2	None	None	None
w	Oars	1 unit ²	1 unit ³	1 unit ³	1 unit ³
x	Oil, illuminating (quarts)	1	None	1	1
y	Oil, storm (gallons)	1	None	1	1
z	Painter	2	1	2	2
aa	Plugs	1	1	1	1
bb	Provisions (pounds per person)	2	None	None	None
cc	Rowlocks	1 unit ²	1 unit ³	1 unit ³	1 unit ³
dd	Rudder and tiller	1	1	1	1
ee	Sea anchor	1	None	1	1
ff	Signals, distress, floating orange smoke	2	None	None	None
gg	Signals, distress, red hand flare	1 unit ²	None	1/2 unit ²	1/2 unit ²

TABLE 192.20-10(a)—Continued

Letter identification	Item	Ocean and coastwise		Great Lakes	Lakes, bays and sounds and rivers
		Other than seagoing barges	Seagoing barges		
1	Signals, distress, red parachute flare.....	1 unit ^a	None	1/2 unit ^a	None
2	Tool kit (motor-propelled lifeboat only).....	1 unit ^a	1 unit ^a	1 unit ^a	1 unit ^a
3	Water (quarts per person).....	3	1	None	None
4	Whistle, signaling.....	1	None	None	None
5	Fishing kit.....	1	None	None	None
6	Cover, protecting.....	1	None	None	None
7	Signals, lifesaving.....	1	None	None	None
8	Desalting kit.....	1 ^a	None	None	None

^aMotor-propelled lifeboats, certified for 100 or more persons, shall be fitted with an additional hand bilge pump of an approved type or a power bilge pump.

^bFor description of units, see § 192.20-15.

^cVessels in coastwise service need only carry 1 unit for each 5 lifeboats or fraction thereof.

^dOptional equipment. See § 192.20-15(j) water.

192.20-15 Description of equipment for lifeboats.

(a) *Bailer*. The bailer shall have a lanyard attached and shall be of sufficient size and suitable for bailing.

(b) *Bilge pump*. Bilge pumps shall be of an approved type, constructed in accordance with Subpart 160.044 of Part 160 of Subchapter Q (Specifications) of this chapter. They shall be of the size given in Table 192.20-15(b) depending upon the capacity of the lifeboat as determined by the six-tenths rule as described in § 160.035-8(b) of Subchapter Q (Specifications) of this chapter.

TABLE 192.20-15(b)

Capacity of lifeboat, cubic feet	Bilge pump size	
	Over	Not over
.....	330	1
200.....	700	2
700.....		3

(c) *Boathooks*. Boathooks shall be of the single hook ballpoint type. Boathook handles shall be of clear grained white ash, or equivalent, and of a length and diameter is given in Table 192.20-15(c).

TABLE 192.20-15(c)

Length of lifeboat, feet		Boathook handles	
Over	Not over	Diameter, inches	Length, feet
.....	23	1 1/2	8
29.....	29	1 1/4	10
23.....		2	12

(d) *Bucket*. The bucket shall be of heavy gage galvanized iron, or other suitable corrosion-resistant metal, of not less than 2-gallon capacity, and shall have a 6-foot lanyard of 12-thread manila attached.

(e) *Compass and mounting*. The compass and mounting shall be of an approved type, constructed in accordance with U.S. Coast Guard specifications dated December 14, 1944.

(f) *Ditty bag*. The ditty bag shall consist of a canvas bag and shall contain a sailmaker's palm, needles, sail twine, marline, and marline spike.

(g) *Drinking cups*. Drinking cups shall be enamel coated or plastic, graduated in ounces, and be provided with lanyards 3 feet in length.

(h) *Fire extinguisher*. Fire extinguishers shall be of an approved Type B-C, Size I (see § 193.50-5 of this subchapter). One shall be attached to each end of the lifeboat.

(i) *First-aid kit*. The first-aid kit in accordance with Subpart 160.041 of Part 160 of Subchapter Q (Specifications) of this chapter.

(j) *Flashlight*. A Type I or Type III flashlight constructed and marked in accordance with ASTM F1014-1986. Three spare cells and two spare bulbs, stowed in a watertight container, shall be provided with each flashlight. Batteries shall be replaced yearly during the annual stripping, cleaning, and overhaul of the lifeboats.

NOTE: Flashlights bearing a Coast Guard approval number may continue to be used in lifeboats and liferafts as long as they are in a serviceable condition.

(k) *Hatchet*. Hatchets shall be of an approved type, constructed in accordance with Subpart 160.013 of Part 160 of Subchapter Q (Specifications) of this chapter. They shall be attached to the lifeboat by individual lanyards and be readily available for use, one at each end of the lifeboat.

(l) *Heaving Line*. The heaving line shall be of adequate strength, 10 fathoms in length and 1 inch in circumference. It shall be of such quality as to be buoyant after 24 hours submergence.

(m) *Jackknife*. The jackknife (with can opener) shall be of an approved type, constructed in accordance with Subpart 160.043 of Part 160 of Subchapter Q (Specifications) of this chapter.

(n) *Ladder, lifeboat gunwale*. The lifeboat gunwale ladder shall consist of 3 flat wood steps cut out for handholds. The steps shall be spaced 12 inches apart and fastened with $\frac{1}{2}$ -inch diameter manila rope. Each rope end shall be tied inside the lifeboat at about amidships with the ladder stowed on top of the side benches and

ready for immediate use. Other suitable devices may be specifically approved.

(o) *Lantern*. The lantern shall contain sufficient oil to burn for at least 9 hours, and shall be ready for immediate use.

(p) *Lifeline*. The lifeline shall be properly secured to the sides of the lifeboat, along its entire length, festooned in bights not longer than 3 feet, with a seine float in each bight, which float may be omitted if the line is of an inherently buoyant material and absorbs little or no water. The lifeline shall be of a size and strength not less than $\frac{3}{8}$ -inch diameter manila. The bights shall hang to within 12 inches of the water when the lifeboat is light.

(q) *Life preservers*. Life preservers shall be of an approved type, constructed in accordance with the applicable subparts of Subchapter Q (Specifications) of this chapter.

(r) *Locker*. The locker shall be suitable for the storage and preservation of the small items of equipment.

(s) *Mast and sail*. A unit, consisting of a standing lug sail together with the necessary spars and rigging, shall be provided in general agreement with Table 192.20-15(s). The sails shall be of good quality canvas, or other material acceptable to the Commandant, colored Indian Orange (Cable No. 70072, Standard Color Card of America). Rope rigging shall consist of galvanized wire not less than three-sixteenths of an inch in diameter. The mast and sail shall be protected by a suitable canvas cover.

TABLE 92.20-15(a)

Length of life boat, feet			Standing lug sail								Mast ¹				Yard ¹				
Over	Not square over	Area, square feet	Lull and head lengths		Leach length		Foot length		Clew to throat		Ounces per square yard	Com-mercial designation No.	Length		Diam-eter, ins.	Length		Diam-eter, ins.	
			Fl	In.	Fl	In.	Fl	In.	Fl	In.			Fl	In.		Fl	In.		
		17	58	5	11	12	1	8	10	10	10	14.35	10	11	2	3	6	11	2
		19	74	6	8	13	6	10	10	12	2	14.35	10	12	6	3	7	8	2
		21	93	7	5	15	1	11	2	13	8	14.35	10	13	10	3 1/2	8	5	2 1/2
		23	113	8	3	16	1	12	4	15	1	14.35	10	15	2	3 1/2	9	3	2 1/2
		25	135	9	0	16	6	13	6	16	6	14.35	10	16	6	4	10	0	3
		27	159	9	9	20	0	14	7	17	10	17.50	8	17	10	4	10	9	3
		29	181	10	5	21	5	15	7	19	3	17.50	8	19	2	4 1/2	11	5	3 1/4
		31	203	11	0	22	8	16	6	20	3	20.74	6	20	6	4 1/2	12	0	1/4
		(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)

Meat and yard shall be of cleaned spruce, fir, or equivalent

¹ Mast lengths measured from heel to center of upper halyard sheave. Mast diameters measured at throat. Mast and yard shall be of clear-grained spruce, fir, or equivalent.

² Subject to special consideration.

(t) *Matches.* A box of friction matches in a watertight container stowed in an equipment locker or secured to the underside of the stern thwart if no locker is fitted.

(u) *Milk, condensed.* One pound of condensed milk shall be provided for each person the lifeboat is certified to carry, to be stowed in lockers or other compartments providing suitable protection.

(v) *Mirrors, signaling.* Signaling mirrors shall be of an approved type (see listing under 160.020 in CG-190, Equipment Lists).

(w) *Oars.* A unit, consisting of a complement of rowing oars and steering oar, shall be provided for each lifeboat in accordance with Table 192.20-15(w), except that motor-propelled and hand-propelled lifeboats need only be equipped with four rowing oars and one steering oar. In any case, the emergency lifeboats shall be provided with the full complement of oars prescribed by the table. All oars shall be buoyant.

TABLE 192.20-15(w)

Length of lifeboat, feet		Number of oars		Length of oars, feet	
Over	Not over	Rowing	Steering	Rowing	Steering
	15	4	1	8	9
15	19	6	1	10	11
19	21	6	1	11	12
21	23	6	1	12	13
23	25	8	1	13	14
25	27	8	1	14	15
27		8	1	15	16

(x) *Oil, illuminating.* One quart of illuminating oil shall be provided in a metal container.

(y) *Oil, storm.* One gallon of vegetable, fish, or animal oil shall be provided in a suitable metal container so constructed as to permit a controlled distribution of oil on the water, and so arranged that it can be attached to the sea anchor.

(z) *Painter.* Painters shall be of manila rope not less than 2¼ inches in circumference, or equivalent, and of a length not less than three times the distance between the deck on which the lifeboat is stowed and the light draft of the vessel. For lifeboats in vessels on ocean, coastwise, or Great Lakes service one of the painters shall

have a long eye splice and be attached to the thwart with a toggle. The other painter shall be attached to the stem.

(aa) *Plug.* The automatic drain required in the lifeboat shall be provided with a cap or plug attached to the lifeboat by a suitable chain.

(bb) *Provisions.* Two pounds of hard bread or its approved equivalent shall be provided for each person the lifeboat is certified to carry. The provisions shall be packaged in hermetically sealed cans of an approved type. The cans shall be stowed in lockers or other compartments providing suitable protection.

(cc) *Rowlocks.* A unit, consisting of sufficient rowlocks and rowlock sockets for each oar required by Table 192.20-15(w) plus two additional rowlocks. The rowlocks shall be attached to the lifeboat by separate chains so as to be available for immediate use, except that the two additional spare rowlocks shall be carried in the equipment locker or stowed near the stern if no locker is fitted. The rowlocks and rowlock sockets shall be distributed so as to provide the maximum amount of single banked oars practicable.

(dd) *Rudder and tiller.* The rudder and tiller shall be constructed in accordance with § 160.035-3(t) in Subpart 160.035 of Subchapter Q (Specifications) of this chapter.

(ee) *Sea anchor.* The sea anchor shall be of an approved type (see listing under 160.019 in CG-190, Equipment Lists).

(ff) *Signals, distress, floating orange smoke.* Two approved floating orange smoke distress signals, constructed in accordance with Subpart 160.022 of Part 160 of this Subchapter Q (Specifications) of this chapter. The service use of this equipment shall be limited to 3 years from date of manufacture, and replacement shall be made no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

(gg) *Signals, distress, red hand flare.* A unit, consisting of 12 approved hand red flare distress signals in a watertight container, constructed in accordance with Subpart 160.021 or Subpart 160.023 of Part 160 of Subchapter Q (Specifications) of this chapter. The service use of this equipment shall be

to 3 years from date of manufacture, and replacement shall be no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

Signals, distress, red parachute

A unit, consisting of 12 parachute flare distress signals with an approved means of projecting them, contained in a portable watertight container; or 12 approved hand-held propellant-propelled parachute red flare distress signals contained in a portable watertight container. Construction shall be in accordance with Subparts 160.024 and 160.028 or Subpart 160.036 of Part 160 of Subchapter Q (Specifications) of this chapter. The service life of this equipment shall be limited to 5 years from date of manufacture, and replacement shall be no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

Tool kit. The tool kit shall contain at least the following tools contained in a suitable container:

One 12-ounce ball peen hammer.
One screwdriver with 6-inch

One pair 8-inch slip joint pliers.

One 8-inch adjustable end cutters.

Water. (1) For each person that is certified to carry, there shall be provided 3 quarts of drinking water consisting of nine approved hermetically sealed containers per person, constructed and filled in accordance with Subpart 160.026 of Part 160 of Subchapter Q (Specifications) of this chapter. The service life of this equipment shall be limited to 5 years from date of packing, and replacement shall be no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration. Approved desalting kits capable of producing an equal amount of drinking water may be substituted for more than one-third of the drinking water required to be carried.

The drinking water containers shall be stowed in drinking water lockers, or other compartments affording suitable protection.

Whistle, signaling. The whistle shall be of the ball type, of corrosion-resistant construction, with a 3-foot

lanyard attached, and in good working order.

(ll) **Fishing kit.** The fishing kit shall be of an approved type constructed in accordance with Subpart 160.061 of Part 160 of Subchapter Q (Specifications) of this chapter.

(mm) **Cover, protecting.** The protecting cover shall be of a highly visible color, and capable of protecting the occupants against injury by exposure.

(nn) **Table of lifesaving signals.** The table shall be in accordance with the provisions of Chapter V, Regulation 16, of the International Convention for Safety of Life at Sea, 1974, and shall be printed on water resistant paper.

(oo) **Desalting kit.** One or more approved desalting kits may be used as a substitute for one-third of the required amount of drinking water per person, and shall be constructed in accordance with Subpart 160.058 of Part 160 of Subchapter Q (Specifications) of this chapter.

[CGFR 67-83, 33 FR 1135, Jan. 27, 1968, as amended by CGFR 70-143, 35 FR 19970, Dec. 30, 1970; CGD 82-042, 53 FR 17706, May 18, 1988; CGD 90-008, 55 FR 30665, July 26, 1990]

§ 192.20-20 Required equipment for liferafts.

(a) The liferafts for all vessels shall be equipped in accordance with Table 192.20-20(a). For a description of the items contained in this table and the units comprising the items see applicable paragraphs of § 192.20-25. The letter identification prefixing the item in the table corresponds to the paragraph designations in § 192.20-25.

TABLE 192.20-20(a)

Letter identification	Item identification	Ocean and coastwise	Great Lakes	Lakes, bays, and sounds; and rivers
a	Boathook	1	1	1
b	Drinking cups	1	None	None
c	Jackknife	1	None	None
d	Lifeline	1 ¹	1 ¹	1 ¹
e	Matches (boxes)	1	1	None
f	Mirrors, signaling	2	None	None
g	Oars	1 unit ²	1 unit ²	1 unit ²
h	Oil, storm (gallons)	1	1	None
i	Painter	1	1	1

TABLE 192.20-20(a)—Continued

Letter identification	Item identification	Ocean and coast-wise	Great Lakes	Lakes, bays, and sounds; and rivers
j	Provisions (pounds per person)	2	None	None
k	Rowlocks	1 unit ²	1 unit ²	1 unit ²
l	Sea anchor	1	1	None
m	Signals, distress	1 unit ²	1 unit ²	None
n	Water (quarts per person)	1	None	None
o	Water light	1	1	None

¹ Not required on Type A liferafts.² For description of units see § 192.20-25.
³ 1 unit here means 6 hand red flare distress signals and 6 parachute red flare distress signals with an approved means of projecting them.

(b) Inflatable liferafts shall be equipped with ocean service equipment for vessels on ocean and coast-wise routes and with limited service equipment for vessels on Great Lakes, lakes, bays, sounds, and river routes in accordance with Subpart 160.051 of Part 160 of Subchapter Q (Specifications) of this chapter.

NOTE: Subpart 160.051 of Subchapter Q (Specifications) of this chapter requires the servicing of inflatable liferafts at approved servicing facilities. Included in the servicing at an approved servicing facility is a complete inspection of the required equipment by a marine inspector.

§ 192.20-25 Description of equipment for liferafts.

(a) *Boathooks.* Boathooks shall be of the single hook ballpoint type. Boathook handles shall be of clear grained white ash, or equivalent, not less than 8 feet long and 1½ inches in diameter.

(b) *Drinking cups.* Drinking cups shall be enameled and provided with ½-inch cotton lanyards 3 feet in length.

(c) *Jackknife.* The jackknife (with can opener) shall be of an approved type, constructed in accordance with Subpart 160.043 of Part 160 of Subchapter Q (Specifications) of this chapter.

(d) *Lifeline.* The lifeline shall be properly secured around the sides and ends of the liferaft, festooned in bights not longer than 3 feet, with a seine float in each bight, which float may be omitted if the line is of an inherently buoyant material and absorbs

little or no water. The lifeline shall be of a size and strength not less than ¾-inch diameter manila.

(e) *Matches.* A box of friction matches in a watertight container.

(f) *Mirrors, signaling.* Signaling mirrors shall be of an approved type (see listings under 160.020 in CG-190, Equipment Lists).

(g) *Oars.* A unit, consisting of four rowing oars and one steering oar not less than 8 feet in length shall be provided for liferafts for seven persons or more. For liferafts for six persons or less, a unit shall consist of two paddles not less than 5 feet in length.

(h) *Oil, storm.* One gallon of vegetable, fish, or animal oil shall be provided in a suitable metal container so constructed as to permit a controlled distribution of oil on the water, and so arranged that it can be attached to the sea anchor.

(i) *Painter.* Painters shall be of manila rope not less than 2¾ inches in circumference and of a length not less than three times the distance between the deck on which the liferafts are stowed and the light draft of the vessel.

(j) *Provisions.* Two pounds of hard bread or its approved equivalent shall be provided for each person the liferaft is certified to carry. The provisions shall be packaged in hermetically sealed cans of an approved type. The cans shall be stowed in compartments providing suitable protection.

(k) *Rowlocks.* A unit consisting of five rowlocks attached to the liferaft by separate chains and ready for immediate use, together with proper rowlock sockets so arranged as to provide four rowing positions and one steering position with the liferaft floating either side up. Rowlocks and rowlock sockets are not required on liferafts for six persons or less.

(l) *Sea anchor.* The sea anchor shall be constructed of good quality canvas or other satisfactory material, and shall not be less than 2 feet in diameter.

(m) *Signals, distress.* A unit consisting of equipment as specified in paragraphs (m)(1) to (3) of this section. The service use of this equipment shall be limited to 3 years from date of manufacture, and replacement shall

ade no later than the first annual
ection of the vessel after the date
piration.

Twelve (12) approved hand red
distress signals in a watertight
liner and two approved floating
ge smoke distress signals, con-
ted in accordance with Subparts
21 and 160.022 of Part 160 of Sub-
ter Q (Specifications) of this
ter; or,

Twelve (12) approved hand red
distress signals in a watertight
liner and 12 approved hand
ge smoke distress signals, con-
ted in accordance with Subparts
21 and 160.037 of Part 160 of Sub-
ter Q (Specifications) of this
ter; or,

Twelve (12) approved hand com-
ion flare and smoke distress sig-
constructed in accordance with
part 160.023 of Part 160 of Sub-
ter Q (Specifications) of this
ter.

Water. (1) For each person the
raft is certified to carry, there shall
rovided 1 quart of drinking water
isting of three approved hermeti-
sealed containers per person,
ructured and filled in accordance
Subpart 160.026 of Part 160 of
chapter Q (Specifications) of this
ter. The service life of this equip-
t shall be limited to 5 years from
of packing, and replacement shall
ade no later than the first annual
ping, cleaning, and overhaul of
lcraft after the date of expira-

The drinking water containers
be stowed in compartments pro-
g suitable protection.

Water light. (1) The water light
be—

Of an approved automatic electric
constructed in accordance with
part 161.010 of this chapter,
pt as allowed under paragraph
of this section; and

Attached to the life raft by a 12-
d manila or equivalent synthetic
ard, at least 5.5 meters (18 feet) in
th.

A water light constructed in ac-
ance with former Subpart 160.012
11.001 of this chapter that was in-
ed before January 1, 1972 may be
ned in an existing installation as

long as it is maintained in good condi-
tion.

[CGFR 87-83, 33 FR 1135, Jan. 27, 1968, as
amended by CGD 79-165a, 45 FR 64187,
Sept. 29, 1980]

§ 192.20-30 Required equipment for life- floats and buoyant apparatus.

(a) The lifefloats and buoyant appa-
ratus for all vessels shall be equipped
in accordance with Table 192.20-30(a).
For a description of the items con-
tained in this table, and the units com-
prising the items, see the applicable
paragraphs of § 192.20-35. The letter
identification prefixing the item in the
table corresponds to the paragraph
designation in § 192.20-35.

TABLE 192.20-30(a)

Letter identi- fication	Item	Number required for each lifefloat and buoyant apparatus		
		Ocean and coast- wise	Great Lakes	Lakes, bays, and sounds, and rivers
a.....	Boathook ¹	1.....	1.....	1.
b.....	Lifeline.....	1.....	1.....	1.
c.....	Paddles ¹	4.....	4.....	4.
d.....	Painter.....	1.....	1.....	1.
e.....	Water light.....	1.....	1.....	None.

¹ Buoyant apparatus need not be equipped with boathook
or paddles.

§ 192.20-35 Description of equipment for lifefloats and buoyant apparatus.

(a) *Boathook*. Boathooks shall be of
the single hook ballpoint type. Boat-
hook handles shall be of clear grained
white ash, or equivalent, not less than
6 feet long and 1½ inches in diameter.

(b) *Lifeline*. The lifeline shall be
properly secured around the sides and
ends of the lifefloat or buoyant appa-
ratus, festooned in bights not longer
than 3 feet, with a seine float in each
bight, which float may be omitted if
the line is of an inherently buoyant
material and absorbs little or no water.
The lifeline shall be of a size and
strength not less than ¾-inch diame-
ter manila.

(c) *Paddles*. Paddles shall not be less
than 5 feet long.

(d) *Painter*. The painter must—

§ 192.20-90

(1) Be at least 30 m (100 ft.) long, but not less than 3 times the distance between the deck on which the life-floats and buoyant apparatus are stowed and the light draft of the vessel.

(2) Have a breaking strength of at least 6.7 kN (1500 lb.), except that if the capacity of the lifeboat or buoyant apparatus is 50 persons or more, the breaking strength must be at least 13.4 kN (3000 lb.).

(3) Be of a dark color if synthetic, or of a type certified to be resistant to deterioration from ultraviolet light, and

(4) Be stowed in such a way that it runs out freely when the lifeboat or buoyant apparatus floats away from the sinking vessel.

(e) *Water light.* (1) the water light must be—

(i) Of an approved automatic electric type, constructed in accordance with Subpart 161.010 of this chapter, except as allowed under paragraph (e)(2) of this section; and

(ii) Attached to the life float or buoyant apparatus by a 12-thread nanila or equivalent synthetic lanyard, at least 5.5 meters (18 feet) in length.

(2) A water light constructed in accordance with former Subpart 160.012 or 161.001 of this chapter that was installed before January 1, 1972 may be retained in an existing installation as long as it is maintained in good condition.

[CGFR 67-83, 33 FR 1135, Jan. 27, 1968, as amended by CGD 79-165a, 45 FR 64188, Sept. 29, 1980; CGD 79-167, 47 FR 41380, Sept. 20, 1982]

§ 192.20-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 192.20-5 through 192.20-35 shall be complied with insofar as the number of items of equipment and the method of stowage of the equipment is concerned.

(2) Existing items of equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 192.20-5 through

46 CFR Ch. I (10-1-90 Edition)

192.20-35 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. All new installations or replacements shall meet the applicable specifications or requirements in this part for new vessels.

Subpart 192.25—Davits for Lifeboats

§ 192.25-1 Application.

(a) The provisions of this subpart with the exception of § 192.25-90, shall apply to all vessels contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 192.25-90.

§ 192.25-5 General.

(a) All gravity and mechanical type davits shall be of an approved type, constructed in accordance with Subpart 160.032 of Part 160 of Subchapter Q (Specifications) of this chapter.

(b) Davits for lifeboats weighing in excess of 5,000 pounds when fully equipped (but without persons) shall be of the gravity type.

(c) All davits shall be so arranged that the lifeboats do not require lifting prior to being swung out, except on small vessels where such requirement is unreasonable or impracticable in the opinion of the Officer in Charge, Marine Inspection.

(d) All davits and necessary gear shall be such as to meet the requirements for the installation test set forth in Subpart 192.35. The design, arrangements, and installation shall be such as to preclude undue delay in getting lifeboats into the water, and shall be of such strength that the lifeboats can be turned out manned by a launching crew and then safely lowered with the full complement of persons and equipment, with the ship listed to 15 degrees either way and with a 10-degree trim.

(e) Radial davits, where permitted, shall comply with the following requirements:

(1) They shall be fitted with means to prevent them from being jerked from their sockets.

§ 192.30-10

(2) They shall maintain a factor of safety of six based on the weight of the fully equipped and loaded lifeboat, except that the weight of the fully equipped lifeboat alone may be used where the lifeboat is launched before being loaded with people.

(3) They shall be fitted with hand gear of sufficient power to insure that the boat can be turned out against a maximum list of 15 degrees.

(4) They shall be shop tested and show no permanent set or undue stress when subjected to a load equal to 2.2 times the working load. In addition, they shall be shop tested with a load equal to 1.1 times the weight of the fully equipped lifeboat with the davit up to simulate a 15-degree list inboard, and it shall be determined that the hand gear can adequately handle the load in this condition.

(5) Davits shall be so disposed on one or more decks as to permit the lifeboats to be placed under them to be safely lowered without interference from the operation of any other davits.

(6) On a vessel on which inflatable lifeboats have been substituted for lifeboats, a launching device for each lifeboat to be used for rescue purposes shall be installed. Radial type davits or other means may be used if acceptable to the Officer in Charge, Marine Inspection.

§ 192.25-10 Approved davits and lifelines for davit spans.

(a) All vessels shall be fitted with a set of approved gravity or mechanical davits for each lifeboat carried, except that on small vessels radial type davits or other means may be used if specifically approved by the Officer in Charge, Marine Inspection.

(b) For all vessels in ocean, coastwise, or Great Lakes service, all davit installations shall have two lifelines attached to a davit span. The lifelines shall be of such length as to reach the deck at the lightest seagoing draft of the vessel listed 15 degrees either way.

§ 192.25-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 192.25-5 and 192.25-10 shall be complied with insofar as the number and general type of equipment is concerned.

(2) Existing items of equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 192.25-5 and 192.25-10 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be made to the same standards as the original installation. However, all new installations or major replacements shall meet the applicable specifications or requirements for new vessels.

(3) All davits for lifeboats weighing in excess of 5,000 pounds when fully equipped (but without persons) shall be of the gravity type.

Subpart 192.30—Lifeboat Winches

§ 192.30-1 Application.

(a) The provisions of this subpart, with the exception of § 192.30-90, shall apply to all vessels contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 192.30-90.

§ 192.30-5 General.

(a) All lifeboat winches shall be of an approved type, constructed in accordance with Subpart 160.015 of Part 160 of Subchapter Q (Specifications) of this chapter.

(b) Where ice conditions are likely to be encountered, suitable covers shall be provided for all lifeboat winches, so fitted over exposed mechanism, that ice formation may be readily broken adrift when necessary to operate the winch.

(c) Where lifeboat winches are used, wire falls shall be employed.

§ 192.30-10 Number and type required.

(a) Lifeboat winches shall be fitted for each set of davits on all vessels in ocean or coastwise service where the height of the deck on which lifeboats

§ 192.30-15

are carried exceeds 20 feet from the lightest seagoing draft.

(b) Lifeboat winches shall be used in all cases where gravity type davits are employed.

(c) Lifeboat winches for use with gravity davits shall have grooved drums of such size that there will be only one layer of wire on the drums. Lifeboat winches for use with mechanical davits need not have grooved drums, and may be designed to take more than one layer of wire.

§ 192.30-15 Installation.

(a) Lifeboat winch controls shall be so located that the operator can observe the movement of the lifeboat during the lowering operation. In addition, any electrical controls provided shall meet the requirements of Subchapter J (Electrical Engineering) of this chapter.

(b) The lead of the falls to the lifeboat winches and length and size of wire shall be in accordance with Subpart 192.33.

[CGFR 67-83, 33 FR 1135, Jan. 27, 1968, as amended by CGD 74-125a, 47 FR 15279, Apr. 3, 1982]

§ 192.30-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 192.30-5 through 192.30-15 shall be complied with insofar as the number and general type of equipment is concerned.

(2) Existing items of equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 192.30-5 through 192.30-15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. However, all new installations or major replacements shall meet the applicable specifications or requirements for new vessels.

46 CFR Ch. I (10-1-90 Edition)

Subpart 192.33—Blocks and Falls for Lifeboats

§ 192.33-1 Application.

(a) The provisions of this subpart, with the exception of § 192.33-90, shall apply to all vessels contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 192.33-90.

§ 192.33-5 General.

(a) All blocks, falls, fairleads, pulleys, shackles, links, fastenings, etc., used in connection with lifeboat gear, shall be designed with a minimum factor of safety of six, based on the maximum working load.

(b) Falls shall be of such length that the lifeboat may be lowered to the water with the vessel at its lightest draft, listed 15 degrees either way.

(c) Falls, where exposed and subject to damage or fouling, shall be suitably protected.

(d) Such blocks or other fittings shall be fitted as are necessary to permit the falls to lead fair in all positions of the davits.

(e) Means for lubrication shall be provided for all moving parts of blocks, sheaves, fairleads, etc.

§ 192.33-10 Installations where lifeboat winches are used.

(a) All falls shall be of wire rope.

(b) Wire rope falls of 6 x 19 regular lay filler wire constructed, prelubricated at the factory with suitable neutral wire rope lubricant, shall be accepted as standard. Any other wire rope superior or equal to this minimum standard may be used if specifically approved.

(c) Not more than two-part falls may be used, except in special cases where three-part falls may be permitted by the Commandant.

(d) The lead sheaves to the drums shall be located so as to provide fleet angles of not more than 8 degrees for grooved drums and not more than 4 degrees for nongrooved drums. By fleet angle is meant the angle included between an imaginary line from the lead sheave perpendicular to the axis of the drum and the line formed by

the wire rope when led from the lead sheave to either extremity of the drum.

(e) Sheaves shall have a diameter at the base of the groove at least equal to 12 times the diameter of the wire rope.

192.33-15 Installations where lifeboat winches are not used.

(a) All falls shall be of manila rope or equivalent. Wire rope shall not be used.

(b) All vessels shall be provided with covered tubs, boxes, or reels for the stowage and protection of the falls, and cruciform bitts shall be provided for properly lowering the lifeboats.

(c) There shall be ample clearance between the cheeks of all blocks. The width between the cheeks shall be $\frac{1}{2}$ -inch greater than the diameter of new rope if $3\frac{3}{4}$ inches circumference or greater is used. Blocks for smaller rope shall be designed with proportional clearances.

192.33-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 192.33-5 through 192.33-15 as applicable, shall be complied with insofar as the general type of equipment is concerned.

(2) Existing equipment previously approved but not meeting the detailed requirements may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be made to the same standards as the original installation. However, all new installations or major replacements shall meet the applicable requirements for new vessels.

Subpart 192.35—Installation of Lifeboats, Davits, and Winches

192.35-1 Application.

(a) The provisions of this subpart apply to all installations, except as set forth in § 196.15-45(c) of this subchapter.

§ 192.35-5 Tests and examinations.

(a) Upon completion of installation of lifeboats, davits, or winches, tests, and examinations as required by this section shall be made to the satisfaction of the inspector before the vessel may be navigated.

(b) The lifeboat shall be swung out from the chocks and lowered to the embarkation deck. At this point the lifeboat shall be loaded with dead-weight equivalent to the number of persons allowed (165 pounds per person) together including the weight of the lifeboat. No person shall be permitted in the lifeboat while it is being loaded or lowered. The lifeboat shall then be lowered to the water and disengaged from the falls.

(1) None of the equipment or parts thereof nor deck connections shall show signs of permanent set or excessive deflection.

(2) Mechanical and radial type davits shall be capable of being swung out without lifting the lifeboat, except on small vessels where such requirements are unreasonable or impracticable in the opinion of the Officer in Charge, Marine Inspection.

(3) The falls shall be of sufficient length to lower the lifeboat as required by § 192.33-5(b).

(4) Where lifeboat winches are used, the following additional determinations shall be made:

(i) During lowering, the lifeboat shall be stopped at intervals of approximately 6 feet by the action of the counterweight alone. The counterweight shall be capable of stopping and holding the lifeboat. The brake action shall be smooth, but positive.

(ii) Brakes exposed to the weather shall be tested under the load conditions with the braking surfaces both wet and dry.

(iii) The governor brake shall be capable of controlling the speed of lowering the fully equipped lifeboat with its complement of persons on board to not more than 120 feet per minute. In addition, the speed of lowering of the fully equipped lifeboat without its complement of persons shall not be less than 40 feet per minute.

Subpart 192.40—Life Preservers

§ 192.40-1 Application.

(a) The provisions of this subpart, with the exception of § 192.40-90, apply to all vessels contracted for on and after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 192.40-90.

[CGFR 67-33, 33 FR 1135, Jan. 27, 1968, as amended by CGFR 68-65, 33 FR 19993, Dec. 28, 1968]

§ 192.40-5 General.

(a) All life preservers shall be of an approved type, constructed in accordance with Subparts 160.002, 160.005, or 160.055 of Subchapter Q (Specifications) of this chapter.

[CGFR 67-33, 33 FR 1135, Jan. 27, 1968, as amended by CGD 82-075a, 49 FR 4487, Feb. 7, 1984]

§ 192.40-10 Number required.

(a) All vessels, including non-self-propelled vessels of less than 300 gross tons, shall be provided with a life preserver for each person on board. An additional number of life preservers shall be provided for the personnel on watch in the engineroom and pilothouse, and at the bow lookout.

(b) When children are carried, a suitable number of children's life preservers shall be provided.

§ 192.40-15 Distribution and stowage.

(a) *Distribution.* (1) Life preservers shall be distributed throughout the quarters for the crew and scientific personnel and other places readily accessible for each person on board. The stowage of the additional number of life preservers required by § 192.40-10 shall be such that they are readily accessible to personnel on watch in the engineroom and pilothouse, and at the bow lookout.

(2) Life preservers stowed overhead shall be so supported that they can be quickly released and distributed. Where life preservers are stowed at a height greater than 7 feet from the deck below, efficient means shall be provided for their immediate release and distribution to be operated by persons standing on the deck.

(3) For vessels on an international voyage and carrying additional life preservers required by § 192.40-10(b), such life preservers shall be stowed in boxes near the lifeboats.

§ 192.40-25 Retroreflective material.

(a) Each life preserver carried on a vessel after June 30, 1980, must have at least 200 sq. cm (31 sq. in.) of retroreflective material attached on its front side, at least 200 sq. cm on its back side, and at least 200 sq. cm of material on each of its reversible sides.

(b) Retroreflective material required by this section must be Type I material that is approved under Subpart 164.018 of this chapter.

(c) The retroreflective material attached on each side of a life preserver must be divided equally between the upper quadrants of the side, and the material in each quadrant must be attached as closely as possible to the shoulder area of the life preserver.

[CGD 76-028, 44 FR 38789, July 2, 1979]

§ 192.40-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 192.40-5 through 192.40-15 shall be complied with insofar as the number of items of equipment and the method of stowage is concerned.

(2) Existing items of equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 192.40-5 through 192.40-15 may be continued in service so long as they are serviceable and in good condition to the satisfaction of the Officer in Charge, Marine Inspection, except that:

(i) Kapok and fibrous glass life preservers which do not have plastic-covered pad inserts, as required by Subparts 160.002 and 160.005 of Part 160 of Subchapter Q (Specifications) of this chapter shall not be permitted.

(3) All new installations or replacements shall meet the applicable specifications or requirements for new equipment, except that:

(i) Cork and balsa wood life preservers constructed in accordance with the applicable provisions of Subpart 160.003 or 160.004 of Part 160 and manufactured as approved life preservers prior to July 1, 1965, may be accepted as new or replacement equipment required by this subchapter if such life preservers are serviceable and in good condition to the satisfaction of the Officer in Charge, Marine Inspection, except for vessels on an international voyage.

Subpart 192.41—Exposure Suits

AUTHORITY: 46 U.S.C. 375, 391a, 416, and 417; 49 U.S.C. 1655(b); 49 CFR 1.46.

192.41-1 Applicability.

This subpart applies to each vessel in ocean, coastwise, or Great Lakes service, except those—

- (a) Operating on routes between 32 degrees North and 32 degrees South latitude in the Atlantic Ocean, or
- (b) Operating on routes between 35 degrees North and 35 degrees South latitude in all other waters.

[CGD 84-090a, 49 FR 50726, Dec. 31, 1984]

192.41-5 Number and type required.

- (a) Each vessel must have an exposure suit for each person on board.
- (b) In addition to the exposure suits required by paragraph (a) of this section, the engine room, pilothouse, bow lookout, and each work station must have enough exposure suits to equal the number of persons normally on watch in or assigned to, the station at any time. However, an exposure suit need not be provided at a watch or work station for a person whose cabin, stateroom, or berthing area (and the exposure suits stowed in that location) is readily accessible to the work station.
- (c) Except as provided in paragraph (d) of this section, each exposure suit on a vessel must be of a type approved under Subpart 160.071 of this chapter.
- (d) An exposure suit in use on a vessel before November 1, 1980, may remain in use on the vessel in place of an exposure suit approved under Subpart 160.071 of this chapter if—
 - (1) It is similar or identical to an approved suit, and

- (2) It is in serviceable condition.

[CGD 76-033a, 45 FR 24487, Apr. 10, 1980; 45 FR 29588, May 5, 1980]

§ 192.41-10 Stowage containers.

- (a) No stowage container for exposure suits may be capable of being locked.
- (b) Exposure suits stowed overhead must be supported in a manner that allows quick release for distribution.
- (c) If exposure suits are stowed more than 2.1 m (7 ft.) above the deck a means for quick release must be provided and must be capable of operation from the deck.

[CGD 76-033a, 45 FR 24487, Apr. 10, 1980]

Subpart 192.42—Personal Flotation Device Lights and Whistles

§ 192.42-1 Personal flotation device lights.

- (a) Each life preserver and each exposure suit carried on a vessel engaged in ocean, coastwise, or Great Lakes service, must have a personal flotation device light that is approved under Subpart 161.012 of this chapter.
- (b) Each personal flotation device light required by this section must be securely attached to the front shoulder area of the life preserver or exposure suit.

[CGD 82-075a, 49 FR 4488, Feb. 7, 1984]

§ 192.42-5 Whistles.

- (a) Each life preserver and each exposure suit on vessels on an international voyage must have a whistle of the ball type or multi-tone type, of corrosion resistant construction, and in good working order.
- (b) The whistle must be attached to the life preserver or exposure suit by a lanyard without hooks, snaps, clips, etc., that is long enough to permit the whistle to reach the mouth of the wearer. If the lanyard allows the whistle to hang below the waist of the wearer, the whistle must be stowed in a pocket on the life preserver or exposure suit, or with the lanyard coiled and stopped off.

[CGD 82-075a, 49 FR 4488, Feb. 7, 1984]

§ 192.43-1

46 CFR Ch. I (10-1-90 Edition)

Subpart 192.43—Ring Life Buoys and Water Lights

§ 192.43-1 Application.

(a) The provisions of this subpart, with the exception of § 192.43-90, shall apply to all vessels contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 192.43-90.

§ 192.43-5 General.

(a) Each ring life buoy must be of an approved type constructed in accordance with Subpart 160.050 of this chapter; except a ring life buoy that was approved under former Subpart 160.009 of this chapter may be used if it is in good and serviceable condition.

(b) Each water light must be of an approved automatic electric type, constructed in accordance with Subpart 161.010 of this chapter; except a water light constructed in accordance with

former Subpart 160.012 or 161.001 this chapter that was installed before January 1, 1972 may be retained in existing installation as long as it maintained in good condition.

(c) A self-activating smoke signal—

(1) Must be approved in accordance with Subpart 160.057 of this chapter and

(2) May not be more than 3 years older than the stamped date of manufacture.

[CGFR 67-83, 33 FR 1135, Jan. 27, 1968, amended by CGFR 72-45, 37 FR 5032, May 9, 1972; CGD 79-165a, 45 FR 64188, Sept. 1980; CGD 80-155a, 47 FR 10559, Mar. 1982]

§ 192.43-10 Number required.

(a) The minimum number of approved 30-inch ring life buoys and the minimum number of which shall have water lights attached, shall be in accordance with Table 192.43-10(a): *Provided*, That unmanned barges are exempt from this section.

TABLE 192.43-10(a)

Length of vessel in feet	Ocean ¹		All services other than ocean	
	Minimum number of ring life buoys	Minimum number of ring life buoys in column 2 which shall have water lights attached	Minimum number of ring life buoys	Minimum number of ring life buoys in column 4 which shall have water lights attached
Column 1	Column 2	Column 3	Column 4	Column 5
Under 100	8	6	2	
100 and under 200	8	6	4	
200 and under 300	8	6	6	
300 and under 400	12	6	12	
400 and under 600	18	9	18	
600 and under 800	24	12	24	
800 and over	30	15	30	

¹ Manned barges shall be equipped with 1 ring life buoy at each end of the vessel with water light attached and 15 feet of line.

(b) One of the ring life buoys on each side of the vessel shall have secured to it a line at least 15 fathoms in length. On vessels on an international voyage, the line shall be of a buoyant type.

(c) On vessels on an international voyage, at least two of the ring life buoys with water lights attached as required by Table 192.43-10(a) shall also be provided with an approved self-acti-

vated smoke signal and shall be capable of quick release from the bridge.

(d) On vessels on an international voyage, the ring life buoys required by this section shall be orange in color.

§ 192.43-15 Distribution and securing.

(a) All ring life buoys shall be placed so as to be readily accessible to persons on board, and their position plainly indicated so as to be known to the persons concerned.

(b) The ring life buoys shall always be capable of being cast loose, and shall not be permanently secured in any way.

§ 192.43-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 192.43-5 through 192.43-15 shall be complied with insofar as the number of items of equipment and the method of stowage is concerned.

(2) Existing items of equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 192.43-5 through 192.43-15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. All new installations or replacements shall meet the applicable specifications or requirements in this subpart for new vessels.

Subpart 192.45—Line-Throwing Appliances

§ 192.45-1 Application.

(a) The provisions of this subpart with the exception of § 192.45-90, shall apply to all mechanically propelled vessels in ocean and coastwise service, contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 192.45-90.

§ 192.45-5 General.

(a) Line-throwing appliances of the impulse-projected rocket type, and the equipment auxiliary thereto, shall be of an approved type, constructed in accordance with Subpart 160.040 of Part 160 of Subchapter Q (Specifications) of this chapter. The service use of rockets shall be limited to a period of 4 years from date of manufacture, and replacement of outdated items shall be made at the first port of arrival in the United States where such rockets are available, except that replacement shall be made in all cases within 12 months after the date of expiration.

(b) Line-throwing appliances of the shoulder-gun type, and the equipment auxiliary thereto, shall be of an approved type, constructed in accordance with Subpart 160.031 of Part 160 of Subchapter Q (Specifications) of this chapter.

§ 192.45-10 Type required.

(a) All vessels shall be fitted with an approved line-throwing appliance of the impulse-projected rocket type. However, vessels of less than 500 gross tons may substitute a line-throwing appliance of the shoulder-gun type.

§ 192.45-15 Equipment for line-throwing appliances.

(a) The following equipment must be carried for each impulse-projected, rocket-type-line-throwing appliance required by this subpart. The equipment must be stowed with the appliance in a case or box, except for the service lines and the auxiliary line, which may be stowed in an accessible location nearby:

(1) Four rockets, two of which shall be of the buoyant type.

(2) Four service lines that—

(i) Are fabricated of the material specified in the approval of the appliance carried;

(ii) Have a length not less than that specified in the approval of the appliance carried;

(iii) Have a diameter from $\frac{3}{32}$ to $\frac{9}{32}$ inch;

(iv) Have a breaking strength of at least 500 pounds; and

(v) Are to be kept in a faking box or reel.

(3) Four prime ejector cartridges.

(4) One cleaning brush, one can of oil, and 12 wiping patches.

(5) One set of instructions from the manufacturer.

(6) One auxiliary line that is fabricated of—

(i) Manila and is at least 1,500 feet long and 3 inches or more in circumference; or

(ii) A synthetic material and is at least 1,500 feet long and is certified by the manufacturer to have a breaking strength of at least 9,000 pounds and inhibited to resist the effects of ultraviolet rays.

(b) The following equipment must be carried for each shoulder gun type, line-throwing appliance required by this subpart. The equipment must be stowed with the appliance in a box or case, except for the service lines and the auxiliary line which may be stowed in an accessible location nearby:

- (1) Ten service projectiles.
- (2) Twenty-five cartridges.
- (3) Four service lines to be kept in faking boxes or on reels and to be fabricated of—
 - (i) Flax or cotton, not less than 400 feet long, $\frac{3}{8}$ inch or more in circumference, and having a breaking strength of not less than 250 pounds; or
 - (ii) Very flexible woven or braided synthetic material, not less than 600 feet long $\frac{1}{4}$ inch or more in diameter, having a breaking strength of not less than 140 pounds and inhibited to resist the effects of ultraviolet rays.
- (4) One cleaning rod with brush, one can of oil, and 12 wiping patches.
- (5) One set of instructions from the manufacturer.
- (6) One auxiliary line that is made of either—
 - (i) Manila and is at least 500 feet long and 3 inches or more in circumference; or
 - (ii) A synthetic material and is at least 500 feet long, and is certified by the manufacturer to have a minimum breaking strength of 9,000 pounds and inhibited to resist the effects of ultraviolet rays.

[CGD 72-135R, 37 FR 16179, Aug. 11, 1972]

§ 192.45-20 Accessibility.

(a) The line-throwing appliance and its equipment shall be kept easily and readily accessible and ready for use. No part of this equipment shall be used for any other purpose.

§ 192.45-25 Service recommendations.

(a) In firing the line-throwing appliances, the operating instructions and safety precautions furnished by the manufacturer should be followed.

§ 192.45-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels in ocean or coastwise service contracted for prior to March 1, 1968, shall meet the requirements

set forth in §§ 192.45-5 through 192.45-25. However, if a Lyle gun type line-throwing appliance is already in service on such vessel, it may be continued in use so long as it is in good and serviceable condition, but may not be replaced by a similar installation. Where Lyle guns are used, the following requirements shall be met:

(1) The equipment enumerated in this paragraph (a)(1) shall be carried for Lyle gun type line-throwing appliances. The equipment and the gun shall be stowed together in a suitable case or box. If the case or box does not meet the requirements of Subpart 160.038 of Part 160 of Subchapter Q (Specifications) of this chapter for portable magazine chest, the powder and primers shall be separately stowed in a chest meeting such requirement.

- (i) Six service projectiles.
- (ii) Eighteen bags (2½ ounces each) of black powder marked "One-half normal charge of Lyle gun, 2½ ounces black powder" in a nonferrous metal screw-top container.
- (iii) One approved firing attachment with accessories consisting of lanyard, wrench, washer to fit between barrel and shoulder of firing attachment, blank plug for screwing into gun when firing attachment is not in place, cartridge extractor, and 25 primers in a watertight metal box.

- (iv) Twenty-five paper wads.
- (v) Four service lines, each 1,700 feet in length, of $\frac{1}{2}$ -inch to $\frac{3}{4}$ -inch diameter flax or manila, and having a breaking strength of at least 500 pounds, to be kept in faking boxes or on reels.
- (vi) One ram rod, one wire brush, one can of light petrolatum, and twelve wiping patches.
- (vii) One tapered wooden plug for muzzle of gun when not in use.
- (viii) One set of instructions furnished by the manufacturer of the gun.
- (ix) One auxiliary line, 1,500 feet of 3-inch circumference manila.

(2) Accessibility. Same as § 192.45-20.

§ 192.55-1

Subpart 192.50—Embarkation Aids

§ 192.50-1 Application.

- (a) The provisions of this subpart, with the exception of § 192.50-90, shall apply to all vessels, contracted for on or after March 1, 1968.
- (b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 192.50-90.

§ 192.50-5 Ladders.

- (a) *General.* (1) All ladders required by this section shall be of an approved type constructed in accordance with Subpart 160.017 of Part 160 of Subchapter Q (Specifications) of this chapter.

- (b) *Vessels in ocean, coastwise, or Great Lakes service.* (1) All vessels in ocean, coastwise, or Great Lakes service shall have an approved Type II (chain suspension) ladder for each set of lifeboat davits, but existing ladders previously approved by the Coast Guard may be continued in service so long as they are maintained in good condition. Such ladders shall be kept ready and convenient for use on the lifeboat deck, and shall reach from such deck to the vessel's light waterline, no heel assumed.

CGFR 67-83, 33 FR 1135, Jan. 27, 1968, as amended by CGD 79-032, 49 FR 25455, June 11, 1984]

§ 192.50-7 Embarkation aids into inflatable liferafts.

- (a) Where inflatable liferafts are substituted for lifeboats, unless freeboard at embarkation point is such that embarkation devices are not necessary, suitable arrangements shall be made for embarkation which shall include sufficient ladders or other suitable devices to facilitate embarkation into the inflatable liferafts when waterborne.

§ 192.50-10 Illumination of lifeboat launching operations.

Each vessel subject to this subchapter must have lights for the continuous illumination of lifeboats that are being launched and lifeboats that are in the water in the immediate vicinity of the vessel. For detailed requirements of the illumination, see Sub-

chapter J (Electrical Engineering Regulations) of this chapter.

[CGD 74-125a, 47 FR 15279, Apr. 8, 1982]

§ 192.50-15 Illumination for inflatable liferaft launching operations.

Each vessel subject to this subchapter must have lights for the continuous illumination of the stowage position and launching area of liferafts. For detailed requirements of the illumination, see Subchapter J (Electrical Engineering Regulations) of this chapter.

[CGD 74-125a, 47 FR 15279, Apr. 8, 1982]

§ 192.50-90 Vessels contracted for prior to March 1, 1968.

- (a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 192.50-5 through 192.50-15 shall be complied with insofar as the number of items of equipment and the method of stowage is concerned.

(2) Existing items of equipment previously approved, but not meeting the applicable specifications or requirements of §§ 192.50-5 through 192.50-15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. All new installations or replacements shall meet the applicable specifications or requirements for new vessels.

(3) The illumination for lifeboat launching operations need not meet the detailed requirements of Subchapter J (Electrical Engineering) of this chapter.

Subpart 192.55—Portable Radio Apparatus

§ 192.55-1 Required on international voyage.

- (a) Vessels on an international voyage shall be provided with a portable radio apparatus complying with the requirements of the Federal Communications Commission unless at least one lifeboat on each side of the vessel is fitted with a fixed radio installation. Such portable radio shall be

§ 192.60-1

kept in the radioroom, chartroom, or other suitable location ready to be moved to one or other of the lifeboats in the event of an emergency.

Subpart 192.60—Ship's Distress Signals

§ 192.60-1 Application.

(a) The provisions of this subpart shall apply to all manned vessels of 300 gross tons and over as specifically noted.

§ 192.60-5 Vessels in ocean or coastwise service.

(a) All vessels in ocean and coastwise service shall carry within the pilothouse or on the navigator's bridge 12 approved hand-held rocket-propelled parachute red flare distress signals, contained in a portable watertight container, constructed in accordance with Subpart 160.036 of Part 160 of Subchapter Q (Specifications) of this chapter.

(b) The service use of the distress signals shall be limited to a period of 3 years from date of manufacture, and replacement of outdated items shall be made at the first port of arrival in the United States where such distress signals are available, except that replacement shall be made in all cases within 12 months after the date of expiration.

§ 192.60-10 Vessels in Great Lakes service.

(a) All vessels in Great Lakes service shall carry within the pilothouse or on the navigator's bridge, 12 approved hand-held red flare distress signals, contained in a portable watertight container, constructed in accordance with Subpart 160.021 or Subpart 160.023 of Part 160 of Subchapter Q (Specifications) of this chapter.

(b) The service use of distress signals shall be limited to a period of 3 years from date of manufacture, and replacement of outdated items shall be made at the first port of arrival in the United States where such distress signals are available, except that replacement shall be made in all cases within 12 months after the date of expiration.

46 CFR Ch. I (10-1-90 Edition)

Subpart 192.65—Emergency Position Indicating Radiobeacon (EPIRB)

§ 192.65-1 Emergency position indicating radiobeacon (EPIRB).

(a) Each vessel in ocean and coastwise service must have an approved Class A emergency position indicating radiobeacon (EPIRB) that is—

- (1) Operative;
- (2) Stowed where it is readily accessible for testing and use; and
- (3) Stowed in a manner so that it will float free if the vessel sinks.

(b) Compliance with paragraph (a) of this section is not required for a coastwise vessel—

- (1) That carries a VHF radiotelephone that complies with the FCC requirements; and
- (2) Whose Certificate of Inspection is endorsed for a route which does not extend more than 20 miles from a harbor of safe refuge.

(c) Each vessel certificate for Great Lakes service, and each other vessel operating on the Great Lakes that is not required to have a Class A EPIRB meeting paragraph (a) of this section, must have two Class C EPIRB's installed—

- (1) In a weather tight enclosure;
- (2) In a readily accessible location;
- (3) One on each side of the vessel; and
- (4) At or near the principal embarkation stations.

[CGD 73-24R, 39 FR 10140, Mar. 18, 1974, as amended by CGD 80-024, 49 FR 40410, Oct. 16, 1984]

PART 193—FIRE PROTECTION EQUIPMENT

Subpart 193.01—Application

Sec.

193.01-1 General.

193.01-5 Equipment installed but not required.

Subpart 193.05—Fire Detecting and Extinguishing Equipment, Where Required

193.05-1 Fire detecting, manual alarm, and supervised patrol systems.

193.05-5 Fire main system.

193.05-10 Fixed fire extinguishing systems.

§ 193.05-10

- § 193.05-15 Hand portable fire extinguishers and semiportable fire extinguishing systems.
- § 193.05-20 Sand.

Subpart 193.10—Fire Main System, Details

- § 193.10-1 Application.
- § 193.10-5 Fire pumps.
- § 193.10-10 Fire hydrants and hose.
- § 193.10-15 Piping.
- § 193.10-90 Installations contracted for prior to March 1, 1968.

Subpart 193.15—Carbon Dioxide Extinguishing Systems, Details

- § 193.15-1 Application.
- § 193.15-5 Quantity, pipe sizes, and discharge rates.
- § 193.15-10 Controls.
- § 193.15-15 Piping.
- § 193.15-20 Carbon dioxide storage.
- § 193.15-25 Discharge outlets.
- § 193.15-30 Alarms.
- § 193.15-35 Enclosure openings.
- § 193.15-40 Pressure relief.
- § 193.15-90 Installations contracted for prior to March 1, 1968.

Subpart 193.50—Hand Portable Fire Extinguishers and Semiportable Fire Extinguishing Systems, Arrangements and Details

- § 193.50-1 Application.
- § 193.50-5 Classification.
- § 193.50-10 Location.
- § 193.50-15 Spare charges.
- § 193.50-20 Semiportable fire extinguishers.
- § 193.50-90 Vessels contracted for prior to March 1, 1968.

Subpart 193.60—Fire Axes

- § 193.60-1 Application.
- § 193.60-5 Number required.
- § 193.60-10 Location.

AUTHORITY: 46 U.S.C. 2213, 3102, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGFR 67-83, 33 FR 1145, Jan. 27, 1968, unless otherwise noted.

Subpart 193.01—Application

§ 193.01-1 General.

(a) The provisions of this part shall apply to all vessels other than non-self-propelled vessels of less than 300 gross tons.

(b) Non-self-propelled vessels of less than 300 gross tons shall not be subject to the provisions of this part,

except as provided otherwise by §§ 193.01-5 and 193.50-1.

§ 193.01-5 Equipment installed but not required.

(a) On all vessels, including non-self-propelled vessels of less than 300 gross tons, where fire detecting or extinguishing systems or equipment are not required, but are installed, the system or equipment and its installation shall meet the requirements of this part.

Subpart 193.05—Fire Detecting and Extinguishing Equipment, Where Required

§ 193.05-1 Fire detecting, manual alarm, and supervised patrol systems.

(a) Fire detecting, manual alarm, and supervised patrol systems are not required, but if installed, the systems shall meet the applicable requirements of Part 76 of Subchapter H (Passenger Vessels) of this chapter.

§ 193.05-5 Fire main system.

(a) Fire pumps, hydrants, hose, and nozzles shall be installed on all manned vessels.

(b) Except as provided for in § 193.10-10(e), the fire main must be a pressurized or a remotely controlled system.

(c) The arrangements and details of the fire main system shall be as set forth in Subpart 193.10.

[CGFR 67-83, 33 FR 1145, Jan. 27, 1968, as amended by CGD 75-031, 40 FR 48349, Oct. 15, 1975]

§ 193.05-10 Fixed fire extinguishing systems.

(a) Approved fire extinguishing systems shall be installed in those locations delineated in this section.

(b) A fixed carbon dioxide or other approved system shall be installed in all lamp and paint lockers, oil rooms, and similar spaces.

(c) Fire extinguishing systems shall be provided for internal combustion engine installations in accordance with the following:

(1) Enclosed spaces containing gasoline engines shall have fixed carbon dioxide systems.

§ 193.05-15

(2) If a fire extinguishing system is installed to protect an internal combustion or gas turbine installation, the system shall be of the carbon dioxide type.

(3) On vessels of 1,000 gross tons and over, a fixed carbon dioxide system shall be installed in all spaces containing internal combustion or gas turbine main propulsion machinery, auxiliaries with an aggregate power of 1,000 b. hp. or greater, or their fuel oil units, including purifiers, valves, and manifolds.

(d) A fixed carbon dioxide system shall be installed in all chemical storerooms.

(e) On vessels of 1,000 gross tons and over, a fixed carbon dioxide, or foam system shall be installed in all spaces containing oil fired boilers, either main or auxiliary, or their fuel oil units, valves, or manifolds in the line between the settling tanks and the boilers. The arrangement and details of the foam system shall be as set forth in Part 95 of Subchapter I (Cargo and Miscellaneous Vessels) of this chapter.

(f) Where an enclosed ventilating system is installed for electric propulsion motors or generators, a fixed carbon dioxide extinguishing system shall be installed in such system.

(g) The arrangements and details of the fixed carbon dioxide extinguishing systems shall be as set forth in Subpart 193.15.

(h) Additional specific requirements for fire extinguishing systems for spaces containing explosives and other dangerous articles or substances are in Part 194 of this subchapter.

§ 193.05-15 Hand portable fire extinguishers and semiportable fire extinguishing systems.

(a) Approved hand portable fire extinguishers and semiportable fire extinguishing systems shall be installed on all manned vessels as set forth in Subpart 193.50.

§ 193.05-20 Sand.

(a) There shall be in each space containing oil fired boilers a metal receptacle containing not less than 10 cubic feet of sand, sawdust impregnated with soda, or other approved dry ma-

46 CFR Ch. I (10-1-90 Edition)

terials together with a scoop or shaker for distributing the same.

(b) In lieu of the requirements in paragraph (a) of this section, one B-II fire extinguisher may be substituted.

Subpart 193.10—Fire Main System, Details

§ 193.10-1 Application.

(a) The provisions of this subpart, with the exception of § 193.10-90, shall apply to all vessels contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 193.10-90.

§ 193.10-5 Fire pumps.

(a) Vessels shall be equipped with independently driven fire pumps in accordance with Table 193.10-5(a).

TABLE 193.10-5(a)

Gross tons		Minimum number of pumps	Hose and hydrant size, inches	Nozzle orifice size, inches	Length of hose, feet
Over	Not over				
.....	100	1 ¹	1 1/2	1 1/2	50
100	1,000	1	1 1/2	1 1/2	50
1,000	1,500	2	1 1/2	1 1/2	50
1,500		2	2 1/2	2 1/2	150

¹ On vessels of 65 feet in length or less, 1/2-inch hose of good commercial grade together with a commercial garden hose nozzle may be used. The pump may be hand operated and the length of hose shall be sufficient to assure coverage of all parts of the vessel.

² 75 feet of 1 1/2-inch hose and 1/2-inch nozzle may be used where specified by § 193.10-10(b) for interior locations and 50 feet 1 1/2-inch hose may be used in exterior locations on vessels in other than ocean or coastwise services.

(b) On vessels of 40 gross tons and over on an international voyage, each required fire pump, while delivering water through the fire main system at a pressure corresponding to that required by paragraph (c) of this section, shall have a minimum capacity of at least two-thirds of that required for an independent bilge pump. However, in no case shall the capacity of each fire pump be less than that otherwise required by this section.

(c) Each pump must be capable of delivering water simultaneously from the outlets having the greatest pressure drop from the five pumps to the nozzles which may not always be the two highest outlets, at a Pitot tube

pressure of not less than 50 p.s.i. where 1½-inch hose is permitted in lieu of 2½-inch hose by footnote 2 of Table 193.10-5(a), the pump capacity shall be determined on the same basis as if 2½-inch hose had been permitted. Where ¾-inch hose is permitted by Table 193.10-5(a), the Pitot tube pressure may not be less than 35 p.s.i.

(d) Fire pumps shall be fitted on the discharge side with relief valves set to relieve at 25 p.s.i. in excess of the pressure necessary to maintain the requirements of paragraph (c) of this section or 125 p.s.i., whichever is greater. Relief valves may be omitted if the pumps, operating under shutoff conditions, are not capable of developing a pressure exceeding this amount.

(e) Fire pumps shall be fitted with a pressure gage on the discharge side of the pumps.

(f) Fire pumps may be used for other purposes provided at least one of the required pumps is kept available for use on the fire system at all times. Unless specifically approved by the Commandant, no branch lines shall be connected to the fire mains for other than fire and deck wash purposes. Other discharge lines shall lead from a discharge manifold near the fire pumps. In no case shall a pump having connection to an oil line be used as fire pump.

(g) The total area of the pipes leading from a pump shall not be less than the discharge area of the pump.

(h) On vessels with oil fired boilers, either main or auxiliary, or with internal combustion propulsion machinery, where 2 fire pumps are required, they shall be located in separate spaces, and the arrangement, pumps, sea connections, and sources of power shall be such as to insure that a fire in any one space will not put all of the fire pumps out of operation. However, where it is shown to the satisfaction of the Commandant that it is unreasonable or impracticable to meet this requirement due to the size or arrangement of the vessel, or for other reasons, the installation of a total flooding carbon dioxide system may be accepted as an alternate method of extinguishing any fire which would affect the powering and operation for the required fire pumps.

(i) Except as provided for in § 193.10-10(e), a sufficient number of hose streams for fire fighting purposes must be immediately available from the fire main at all times by either of the following methods:

(1) *Maintenance of water pressure.*
(i) Water pressure must be maintained on the fire main at all times by the continuous operation of:

(A) One of the fire pumps; or
(B) Another suitable pump capable of supplying one hose stream at a Pitot tube pressure of not less than 50 p.s.i. (35 p.s.i. for ¾-inch hose); or,

(C) A pressure tank capable of supplying one hose stream at a Pitot tube pressure of not less than 50 p.s.i. (35 p.s.i. for ¾-inch hose) for five minutes.

(ii) An audible alarm must be installed to sound in a continuously manned space if the pressure in the fire main drops to less than that necessary to maintain the minimum Pitot tube pressures specified in § 193.10-5(i)(1)(i).

(2) *Remote control of fire pumps.* (i) At least one fire pump must be capable of remote activation and control.

(ii) If the fire pump is in a continuously manned machinery space, the controls for operating it and the controls for all necessary valves must be located on the manned operating platform in that space.

(iii) If the fire pump is in an unmanned machinery space, the controls for its operation and the controls for all necessary valves must be located in:

(A) The fire control station, if any; or,

(B) The bridge, if there is no fire control station; or,

(C) A readily accessible space acceptable to the Officer in Charge, Marine Inspection.

[CGFR 67-83, 33 FR 1145, Jan. 27, 1968, as amended by CGD 75-031, 40 FR 48349, Oct. 15, 1975]

§ 193.10-10 Fire hydrants and hose.

(a) The size of fire hydrants, hose, and nozzles and the length of hose required shall be as noted in Table 193.10-5(a).

(b) In lieu of the 2½-inch hose and hydrants specified in Table 193.10-5(a), on vessels over 1,500 gross tons,

the hydrants in interior locations may have siamese connections for 1½-inch hose. In these cases the hose shall be 75 feet in length, and only one hose will be required at each fire station; however, if all such stations can be satisfactorily served with 50-foot lengths, 50-foot hose may be used.

(c) On vessels of 1,000 gross tons and over there shall be at least one shore connection to the fire main available to each side of the vessel in an accessible location. Suitable cutout valves and check valves shall be provided. Suitable adapters also shall be provided for furnishing the vessel's shore connections with couplings mating those on the shore fire lines. Such vessels on an international voyage, shall be provided with at least one international shore connection. Facilities shall be available enabling such a connection to be used on either side of the vessel. The international shore connection shall be in accordance with specification Subpart 162.034 of Part 162 of Subchapter Q (Specifications) of this chapter.

(d) Fire hydrants shall be of sufficient number and so located that any part of the vessel, other than main machinery spaces, may be reached with at least 2 streams of water from separate outlets, at least one of which shall be from a single length of hose. At least one hydrant and hose with a fog applicator shall be located outside and in the immediate vicinity of each laboratory. In main machinery spaces, all portions of such spaces shall be capable of being reached by at least 2 streams of water, each of which shall be from a single length of hose from separate outlets; however, this requirement need not apply to shaft alleys containing no assigned space for the stowage of combustibles. Fire hydrants shall be numbered as required by § 196.37-15 of this subchapter.

(e) All parts of the fire main located on exposed decks shall either be protected against freezing or be fitted with cutout valves and drain valves so that the entire exposed parts of such piping may be shut off and drained in freezing weather. Except when closed to prevent freezing, such valves shall be sealed open.

(f) The outlet at the fire hydrant shall be limited to any position from the horizontal to the vertical pointing downward, so that the hose will lead horizontally or downward to minimize the possibility of kinking.

(g) Each fire hydrant shall be provided with a single length of hose with nozzle attached and a spanner. A suitable hose rack or other device shall be provided for the proper stowage of the hose. If the hose is not stowed in the open or behind glass so as to be readily seen, the enclosures shall be marked in accordance with § 196.37-15 of this subchapter.

(h) Fire hose shall be connected to the outlets at all times. However, on open decks where no protection is afforded to the hose in heavy weather the hose may be temporarily removed from the hydrant and stowed in an accessible nearby location.

(i) Each fire hydrant must have at least one length of firehose. Each fire hose must have a combination solid stream and water spray nozzle that is approved under Subpart 162.027 of this chapter, except ¾ inch hose may have a garden hose nozzle that is bronze or metal with strength and corrosion resistance equivalent to bronze.

(i-1) Each of the following must have a low-velocity water spray applicator that is approved under Subpart 162.027 of this chapter:

(1) At least one length of firehose of each fire hydrant outside, and in the immediate vicinity of, each laboratory.

(2) In each propulsion machinery space containing an oil-fired boiler, internal combustion machinery, or fuel unit on a vessel of 1000 gross tons or more, each firehose having an approved combination nozzle. The length of each applicator must be four feet.

(i-2) Fixed brackets, hooks, or other means for stowing an applicator must be next to each fire hydrant that has an applicator under paragraph (i-1) of this section.

(j) Firehose shall not be used for any other purpose than fire extinguishing drills, and testing.

(k) Fire hydrants, nozzles, and other fittings shall have threads to accommodate the hose connections noted in this paragraph. Firehose and couplings shall be as follows:

(1) Couplings shall be of brass, bronze, or other equivalent metal. National Standard firehose coupling threads shall be used for the 1½-inch and 2½-inch sizes, i.e., 9 threads per inch for 1½-inch hose and 7½ threads per inch for 2½-inch hose.

(2) Unlined hose shall not be used in the machinery spaces.

(3) Where ¾-inch hose is permitted by Table 193.10-5(a), the hose and couplings shall be of good commercial grade.

(4) Each section of fire hose used after January 1, 1980 must be lined commercial fire hose that conforms to Underwriters' Laboratories, Inc. Standard 19 or Federal Specification ZZ-H-451E. Hose that bears the label of Underwriters' Laboratories, Inc. as lined fire hose is accepted as conforming to this requirement. Each section of replacement fire hose or any section of new fire hose placed aboard a vessel after January 1, 1977 must also conform to the specification required by this paragraph.

[CGFR 67-83, 33 FR 1145, Jan. 27, 1968, as amended by CGD 74-60, 41 FR 43152, Sept. 10, 1976; CGD 76-086, 44 FR 2394, Jan. 11, 1979]

§193.10-15 Piping.

(a) All piping, valves, and fittings, shall meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) All distribution cut-off valves shall be marked as required by §196.37-10 of this subchapter.

(c) For vessels on an international voyage, the diameter of the fire main shall be sufficient for the effective distribution of the maximum required discharge from two fire pumps operating simultaneously. This requirement is in addition to § 193.10-5(c). The discharge of this quantity of water through hoses and nozzles at a sufficient number of adjacent hydrants must be at a minimum Pitot tube pressure of 50 pounds per square inch.

[CGFR 67-83, 33 FR 1145, Jan. 27, 1968, as amended by CGD 75-031, 40 FR 48349, Oct. 15, 1975]

§ 193.10-90 Installations contracted for prior to March 1, 1968.

(a) Installations contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 193.10-5 through 193.10-15 shall be complied with insofar as the number and general type of equipment is concerned.

(2) Existing equipment, except firehose nozzles and low-velocity water spray applicators, previously approved, but not meeting the applicable requirements of §§ 193.10-5 through 193.10-15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alteration, and replacements may be permitted to the same standards as the original installations. However, all new installations or major replacements shall meet the applicable requirements in this subpart for new installations.

(3) The general requirements of § 193.10-5 (c) through (g), § 193.10-10 (d) through (i), and § 95.10-15 shall be complied with insofar as is reasonable and practicable.

(4) Before February 12, 1981, each firehose nozzle must meet § 193.10-10(i), and each low-velocity water spray applicator must meet § 193.10-10(i-1), except if the nozzle or applicator was approved under Subpart 162.027 of this chapter before May 26, 1965—

(i) The nozzle must have a high-velocity spray tip that meets § 162.027-2(c) of this chapter, and the applicator must have a low-velocity water spray head that meets § 162.027-2(c) of this chapter; or

(ii) The fire hydrant or nozzle must have a self-cleaning strainer that meets the requirements under which the nozzle was approved.

(5) After February 11, 1981, each new or replacement nozzle must meet § 193.10-10(i), and each new or replacement low-velocity water spray applicator must meet § 193.10-10(i-1).

[CGFR 67-83, 33 FR 1145, Jan. 27, 1968, as amended by CGD 76-086, 44 FR 2394, Jan. 11, 1979]

Subpart 193.15—Carbon Dioxide Extinguishing Systems, Details

§ 193.15-1 Application.

(a) The provisions of this subpart shall apply to all new installations contracted for on or after March 1, 1968.

(b) Installations contracted for prior to March 1, 1968, shall meet the requirements of § 193.15-90.

(c) The requirements of this subpart are based on a "high pressure system," i.e., one in which the carbon dioxide is stored in liquid form at atmospheric temperature. Details for "low pressure systems," i.e., those in which the carbon dioxide is stored in liquid form at a continuously controlled low temperature, may be specifically approved by the Commandant where it is demonstrated that a comparable degree of safety and fire extinguishing ability is achieved.

§ 193.15-5 Quantity, pipe sizes, and discharge rates.

(a) *General.* The amount of carbon dioxide required for each space shall be as determined by paragraphs (b) through (d) of this section.

(b) *Total available supply.* A separate supply of carbon dioxide need not be provided for each space protected. The total available supply shall be at least sufficient for the space requiring the greatest amount.

(c) *Enclosed ventilation systems for rotating electrical propulsion equipment.* (1) The number of pounds of carbon dioxide required for the initial charge shall be equal to the gross volume of the system divided by 10 for systems having a volume of less than 2,000 cubic feet, and divided by 12 for systems having a volume of 2,000 cubic feet or more.

(2) In addition to the amount required by paragraph (c)(1) of this section there shall be sufficient carbon dioxide available to permit delayed discharges of such quantity as to maintain at least a 25-percent concentration until the equipment can be stopped. If the initial discharge is such as to achieve this concentration until the equipment is stopped, no delayed discharge need be provided.

(3) The piping for the delayed discharge shall not be less than 1/2-inch standard pipe, and no specific discharge rate need be applied to such systems. On small systems, this pipe may be incorporated with the initial discharge piping.

(4) The piping for the initial charge shall be in accordance with Table 193.15-5(d)(4), and the discharge of the required amount shall be completed within 2 minutes.

(d) *Machinery spaces, paint lockers, tanks, chemical storerooms, and similar spaces.* (1) Except as provided in paragraph (d)(3) of this section, the number of pounds of carbon dioxide required for each space shall be equal to the gross volume of the space divided by the appropriate factor noted in Table 193.15-5(d)(1). If fuel can drain from the compartment being protected to an adjacent compartment, or if the compartments are not entirely separate, the requirements for both compartments shall be used to determine the amount of carbon dioxide to be provided. The carbon dioxide shall be arranged to discharge into both such compartments simultaneously.

TABLE 193.15-5(d)(1)

[Gross volume of compartment, cubic feet]

Over	Not over	Factor
	500	15
500	1,800	16
1,800	4,500	18
4,500	50,000	20
50,000		22

(2) For the purpose of the requirements of this paragraph, the volume of the machinery space shall be taken as exclusive of the normal machinery casing unless the boiler, internal combustion machinery, or fuel oil installations extend into such space, in which case the volume shall be taken to the top of the casing or the next material reduction in casing area, whichever is lower. "Normal machinery casing" and "material reduction in casing area" shall be defined as follows:

(i) By "normal machinery casing" shall be meant a casing the area of which is not more than 40 percent of

the maximum area of the machinery space.

(11) By "material reduction in casing area" shall be meant a reduction to at least 40 percent of the casing area.

(3) For vessels on an international voyage contracted for on or after May 26, 1965, the amount of carbon dioxide required for a space containing propulsion boilers or internal combustion propulsion machinery shall be as given by paragraphs (d)(1) and (2) of this section or by dividing the entire volume, including the casing, by a factor of 25, whichever is the larger.

(4) Branch lines to the various spaces shall be as noted in Table 193.15-5(d)(4).

TABLE 193.15-5(d)(4)

Maximum quantity of carbon dioxide required, pounds	Minimum pipe size, inches
100	1/2
225	3/4
350	1
475	1 1/4
600	1 1/2
725	2
850	2 1/2
975	3
1,100	3 1/2
1,225	4
1,350	4 1/2

(5) Distribution piping within the space shall be proportioned from the supply line to give proper distribution to the outlets without throttling.

(6) The number, type, and location of discharge outlets shall be such as to give a uniform distribution throughout the space.

(7) The total area of all discharge outlets shall not exceed 85 percent nor be less than 35 percent of the normal cylinder outlet area or the area of the supply pipe, whichever is smaller. The nominal cylinder outlet area in square inches shall be determined by multiplying the factor 0.0022 by the number of pounds of carbon dioxide required, except that in no case shall this outlet area be less than 0.110 square inch.

(8) The discharge of at least 85 percent of the required amount of carbon dioxide shall be complete within 2 minutes.

§ 193.15-10 Controls.

(a) Except as noted in § 193.15-20(b), all controls and valves for the operation of the system shall be outside the space protected and shall not be located in any space that might be cut off or made inaccessible in the event of fire in any of the spaces protected.

(b) If the same cylinders are used to protect more than one hazard, a manifold with normally closed stop valves shall be used to direct the carbon dioxide into the proper space. If cylinders are used to protect only one hazard, a normally closed stop valve shall be installed between the cylinders and the hazard except for systems of the type indicated in § 193.15-5(d) which contain not more than 300 pounds of carbon dioxide.

(c) One of the stations controlling the system for the main machinery space and the chemical storerooms shall be located as convenient as practicable to one of the main escapes from these spaces. All control stations and the individual valves and controls shall be marked as required by §§ 196.37-10 and 196.37-13 of this subchapter.

(d) Systems of the type indicated in § 193.15-5(d) shall be actuated by one control operating the valve to the space and a separate control releasing at least the required amount of carbon dioxide. These two controls shall be located in a box or other enclosure clearly identified for the particular space. Those systems installed without a stop valve shall be operated by one control releasing at least the required amount of carbon dioxide.

(e) Where provisions are made for the simultaneous release of a given amount of carbon dioxide by operation of a remote control, provisions shall also be made for manual control at the cylinders. Where gas pressure from pilot cylinders is used as a means for releasing the remaining cylinders, not less than two pilot cylinders shall be used for systems consisting of more than two cylinders. Each of the pilot cylinders shall be capable of manual control at the cylinder, but the remaining cylinders need not be capable of individual manual control.

(f) Systems of the type indicated in § 193.15-5(d), other than systems for tanks, which are of more than 300 pounds of carbon dioxide, shall be fitted with an approved delayed discharge so arranged that the alarm will be sounded for at least 20 seconds before the carbon dioxide is released into the space. Such systems of not more than 300 pounds of carbon dioxide shall also have a similar delayed discharge, except for those systems for tanks and for spaces which have a suitable horizontal escape.

(g) All distribution valves and controls shall be of an approved type. All controls shall be suitably protected.

(h) Complete but simple instructions for the operation of the systems must be located in a conspicuous place at or near all pull boxes, stop valve controls and in the CO₂ cylinder storage room. On systems in which the CO₂ cylinders are not within the protected space, these instructions must also include a schematic diagram of the system and instructions detailing alternate methods of discharging the system should the manual release or stop valve controls fail to operate. Each control valve to branch lines must be marked to indicate the related space served.

(i) If the space or enclosure containing the carbon dioxide supply for controls is to be locked, a key to the space or enclosure shall be in a break-glass-type box conspicuously located adjacent to the opening.

[CGFR 87-83, 33 FR 1145, Jan. 27, 1968, as amended by CGD 74-100R, 40 FR 6209, Feb. 10, 1975]

§ 193.15-15 Piping.

(a) The piping, valves, and fittings shall have a bursting pressure of not less than 6,000 pounds per square inch.

(b) All piping, in nominal sizes not over ¾ inch shall be at least Schedule 40 (standard weight) and in nominal sizes over ¾ inch, shall be at least Schedule 80 (extra heavy).

(c) All piping valves, and fittings of ferrous materials shall be protected inside and outside against corrosion unless specifically approved otherwise by the Commandant.

(d) A pressure relief valve or equivalent set to relieve between 2,400 and

2,800 pounds per square inch shall be installed in the distribution manifold or such other location as to protect the piping in the event that all branch line shutoff valves are closed.

(e) All dead-end lines shall extend at least 2 inches beyond the last orifice and shall be closed with cap or plug.

(f) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(g) Drains and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture. Drains and dirt traps shall be located in accessible locations where possible.

(h) Piping shall be used for no other purpose except that it may be incorporated with the fire-detecting system.

(i) Piping passing through living quarters shall not be fitted with drains or other openings within such spaces.

(j) Installation test requirements are:

(1) Upon completion of the piping installation, and before the cylinders are connected, a pressure test shall be applied as set forth in this paragraph. Only carbon dioxide or other inert gas shall be used for this test.

(2) The piping from the cylinders to the stop valves in the manifold shall be subjected to a pressure of 1,000 pounds per square inch. With no additional gas being introduced to the system, it shall be demonstrated that the leakage of the system is such as not to permit a pressure drop of more than 150 pounds per square inch per minute for a 2-minute period.

(3) The individual branch lines to the various spaces protected shall be subjected to a test similar to that described in the preceding subparagraph with the exception that the pressure used shall be 600 pounds per square inch in lieu of 1,000 pounds per square inch. For the purpose of this test, the distribution piping shall be capped within the space protected at the first joint ahead of the nozzles.

(4) In lieu of the tests prescribed in the preceding paragraphs in this paragraph, small independent systems protecting spaces such as emergency generator rooms, lamp lockers, chemical storerooms, etc., may be tested by blowing out the piping with air at a

pressure of at least 100 pounds per square inch.

§ 193.15-20 Carbon dioxide storage.

(a) Except as provided in paragraph (b) of this section, the cylinders shall be located outside the spaces protected, and shall not be located in any space that might be cut off or made inaccessible in the event of a fire in any of the spaces protected.

(b) Systems of the type indicated in § 193.15-5(d), consisting of not more than 300 pounds of carbon dioxide, may have cylinders located within the space protected. If the cylinder stowage is within the space protected, the system shall be arranged in an approved manner to be automatically operated by a heat actuator within the space in addition to the regular remote and local controls.

(c) The space containing the cylinders shall be properly ventilated and designed to preclude an anticipated ambient temperature in excess of 130° F.

(d) Cylinders shall be securely fastened and supported, and where necessary, protected against injury.

(e) Cylinders shall be so mounted as to be readily accessible and capable of easy removal for recharging and inspection. Provisions shall be available for weighing the cylinders.

(f) Where subject to moisture, cylinders shall be so installed as to provide a space of at least 2 inches between the flooring and the bottom of the cylinders.

(g) Cylinders shall be mounted in an upright position or inclined not more than 30 degrees from the vertical. However, cylinders which are fitted with flexible or bent siphon tubes may be inclined not more than 80 degrees from the vertical.

(h) Where check valves are not fitted on each independent cylinder discharge, plugs or caps shall be provided for closing outlets when cylinders are removed for inspection or refilling.

(i) All cylinders used for storing carbon dioxide must be fabricated, tested, and marked in accordance with the requirements of §§ 147.60 and 147.65 of this chapter.

§ 193.15-35

[CGFR 67-83, 33 FR 1145, Jan. 27, 1968, as amended by CGD 84-044, 53 FR 7753, Mar. 10, 1988]

§ 193.15-25 Discharge outlets.

(a) Discharge outlets shall be of an approved type.

§ 193.15-30 Alarms.

(a) Space normally accessible to persons on board while the vessel is being navigated which are protected by a carbon dioxide extinguishing system and are required to be fitted with a delayed discharge system other than paint and lamp lockers and similar small spaces, shall be fitted with an approved audible alarm which will be automatically sounded when the carbon dioxide is admitted to the space. The alarm shall be conspicuously and centrally located and shall be marked as required by § 196.37-9 of this subchapter. Such alarms shall be so arranged as to sound during the 20-second delay period prior to the discharge of carbon dioxide into the space, and the alarm shall depend on no source of power other than the carbon dioxide.

§ 193.15-35 Enclosure openings.

(a) Where mechanical ventilation is provided for spaces which are protected by carbon dioxide extinguishing systems provisions shall be made so that the ventilation system is automatically shut down with the operation of the system to that space.

(b) Where natural ventilation is provided for spaces protected by a carbon dioxide extinguishing system, provisions shall be made for easily and effectively closing off the ventilation.

(c) Means shall be provided for closing all other openings to the space protected from outside such space. In this respect, relatively tight doors, shutters, or dampers shall be provided for openings in the lower portion of the space. The construction shall be such that openings in the upper portion of the space can be closed off either by permanently installed means or by the use of canvas or other material which is normally carried by the vessel.

§ 193.15-40

§ 193.15-40 Pressure relief.

(a) Where necessary, relatively tight compartments such as refrigeration spaces, paint lockers, etc., shall be provided with suitable means for relieving excessive pressure accumulating within the compartment when the carbon dioxide is injected.

§ 193.15-90 Installations contracted for prior to March 1, 1968.

(a) Installations contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be permitted to the same standards as the original installations. However, all new installations or major replacements shall meet the applicable requirements in this subpart for new installations.

(2) The details of the systems shall be in general agreement with §§ 193.15-5 through 193.15-40 insofar as is reasonable and practicable, with the exception of § 193.15-5(d) (1), (2), and (4), covering machinery spaces, etc., which systems may be installed in accordance with paragraphs (a) (3) through (6) of this section.

(3) In boilerrooms, the bilges shall be protected by a system discharging principally below the floorplates. Perforated pipe may be used in lieu of discharge nozzles for such systems. The number of pounds of carbon dioxide shall be equal to the gross volume of the boilerroom taken to the top of the boilers divided by 36. In the event of an elevated boilerroom which drains to the machinery space, the system shall be installed in the engineroom bilge and the gross volume shall be taken to the flat on which the boilers are installed.

(4) In machinery spaces where main propulsion internal combustion machinery is installed, the number of pounds of carbon dioxide required shall be equal to the gross volume of the space taken to the under side of

46 CFR Ch. I (10-1-90 Edition)

the deck forming the hatch opening divided by 22.

(5) In miscellaneous spaces other than cargo or main machinery spaces the number of pounds of carbon dioxide required shall be equal to the gross volume of the space divided by 22.

(6) Branch lines to the various spaces other than cargo and similar spaces shall be as noted in Table 193.15-90(a)(6). This table is based on cylinders having discharge outlets and siphon tubes of 3/4-inch diameter.

TABLE 193.15-90(a)(6)

Number of cylinders		Nominal pipe size, inches
Over	Not over	
	2	1/2—standard.
2	4	3/4—standard.
4	6	1—extra heavy.
6	12	1 1/4—extra heavy.
12	16	1 1/2—extra heavy.
16	27	2—extra heavy.
27	39	2 1/2—extra heavy.
39	60	3—extra heavy.
60	80	3 1/2—extra heavy.
80	104	4—extra heavy.
104	165	5—extra heavy.

Subpart 193.50—Hand Portable Fire Extinguishers and Semiportable Fire Extinguishing Systems, Arrangements and Details

§ 193.50-1 Application.

(a) The provisions of this subpart, with the exception of § 193.50-90, shall apply to all vessels, including non-self-propelled vessels of less than 300 gross tons, contracted for on or after March 1, 1968.

(b) All vessels other than unmanned barges contracted for prior to March 1, 1968, shall meet the requirements of § 193.50-90.

(c) All unmanned barges are exempted from the requirements in this subpart. However, if such barges carry on board hand portable fire extinguishers and semiportable fire extinguishing systems, then such equipment shall be in accordance with this subpart for manned barges.

§ 193.50-5 Classification.

(a) Hand portable fire extinguishers and semiportable fire extinguishing

systems shall be classified by a combination letter and number symbol. The letter indicating the type of fire which the unit could be expected to extinguish and the number indicating the relative size of the unit.

(b) The types of fire will be designated as follows:

(1) "A" for fires in ordinary combustible materials where the quenching and cooling effects of quantities of water, or solutions containing large percentages of water, are of first importance.

(2) "B" for fires in flammable liquids, greases, etc., where a blanketing effect is essential.

(3) "C" for fires in electrical equipment where the use of nonconducting extinguishing agent is of first importance.

(c) The number designations for size will start with "I" for the smallest to "V" for the largest. Sizes I and II are considered hand portable fire extinguishers and sizes III, IV, and V are considered semiportable fire extinguishing systems which shall be fitted with suitable hose and nozzle or other practicable means so that all portions of the space concerned may be covered. Examples of size graduations for some of the typical hand portable and semiportable fire extinguishing systems are set forth in Table 193.50-5(c).

TABLE 193.50-5(c)

Classification		Soda-acid and water, gals.	Foam, gals.	Carbon dioxide, lbs.	Dry chemical, lbs.
Type	Size				
A	II	2½	2½		
B	I		1½	4	2
B	II		2½	15	10
B	III		12	35	20
B	IV		20	50	30
B	V		40	100	50
C	I			4	2

TABLE 193.50-5(c)—Continued

Classification		Soda-acid and water, gals.	Foam, gals.	Carbon dioxide, lbs.	Dry chemical, lbs.
Type	Size				
C	II			15	10

(d) All hand portable fire extinguishers and semiportable fire extinguishing systems shall have permanently attached thereto a metallic nameplate giving the name of the item, the rated capacity in gallons, quarts, or pounds, the name and address of the person or firm for whom approved, and the identifying mark of the actual manufacturer.

(e) Vaporizing liquid type fire extinguishers containing carbon tetrachloride or chlorobromomethane or other toxic vaporizing liquids shall not be permitted.

§ 193.50-10 Location.

(a) Approved hand portable fire extinguishers and semiportable fire extinguishing systems shall be installed in accordance with Table 193.50-10(a). The location of the equipment shall be to the satisfaction of the Officer in Charge, Marine Inspection. Nothing in this paragraph shall be construed as limiting the Officer in Charge, Marine Inspection, from requiring such additional equipment as he deems necessary for the proper protection of the vessel.

(b) Semiportable fire extinguishing systems shall be located in the open so as to be readily seen.

(c) If hand portable fire extinguishers are not located in the open or behind glass so that they may be readily seen, they may be placed in enclosures together with the firehose, provided such enclosures are marked as required by § 196.37-15 of this subchapter.

TABLE 193.50-10(a)—HAND PORTABLE FIRE EXTINGUISHER AND SEMI-PORTABLE FIRE EXTINGUISHING SYSTEMS

Space	Classification (see § 193.50-5)	Quantity and location
Safety Areas ¹		
Wheelhouse or fire control room		None required.

TABLE 193.50-10(a)—HAND PORTABLE FIRE EXTINGUISHER AND SEMI-PORTABLE FIRE EXTINGUISHING SYSTEMS—Continued

Space	Classification (see § 193.50-5)	Quantity and location
Stairway and elevator enclosures		Do.
Communicating corridors	A-II	1 in each main corridor not more than 150 feet apart. (May be located in stairways.)
Lifeboat embarkation and lowering stations		None required.
Radio room	C-I ¹	2 in vicinity of exit. ²
<i>Accommodations³</i>		
Staterooms, toilet spaces, public spaces, offices, lockers, isolated storerooms, and pantries open decks, etc.		None required.
<i>Service spaces</i>		
Galleys	B-II or C-II	1 for each 2,500 square feet or fraction thereof suitable for hazards involved.
<i>Machinery spaces</i>		
Paint and lamp rooms	B-II	1 outside space in vicinity of exit.
Accessible baggage, mail, and specie rooms, and storerooms	A-II	1 for each 2,500 square feet or fraction thereof located in vicinity of exits, either inside or outside the space.
Carpenter shop and similar spaces	A-II	1 outside the space in vicinity of exit.
Coal-fired boilers: Bunker and boiler space		None required.
Oil-fired boilers: Spaces containing oil-fired boilers, either main or auxiliary, or their fuel-oil units	B-II B-V	2 required. ⁴ 1 required. ⁴
Internal combustion or gas turbine propelling machinery spaces	B-II	1 for each 1,000 brake horsepower, but not less than 2 nor more than 6. ⁵
Electric propulsive motors or generators of open type	B-III C-II	1 required. ⁶ 1 for each propulsion motor or generator unit.
Enclosed ventilating systems for motors and generators of electric propelling machinery		None required.
<i>Auxiliary spaces:</i>		
Internal combustion gas turbine	B-II	1 outside the space in vicinity of exit. ⁷
Electric emergency motors or generators	C-II	1 outside the space in vicinity of exit. ⁸
Steam		None required.
Trunks to machinery spaces		Do.
Fuel tanks		Do.
<i>Scientific spaces</i>		
Chemistry laboratory or scientific laboratory	C-II	1 dry chemical and 1 carbon dioxide for each 300 square feet or fraction thereof, with one (1) of each located in the vicinity of the exit.
Chemical storeroom	C-II	Same as for the chemistry laboratory.

¹ Two B-I hand portable fire extinguishers may be substituted for 1 B-II.² For vessels on an international voyage, substitute 1 C-II in vicinity of exit.³ Vessels of less than 1,000 gross tons require 1.⁴ Vessels of less than 1,000 gross tons may substitute 1 B-IV.⁵ Only 1 required for motorboats.⁶ If oil burning donkey boiler fitted in space, the B-V previously required for the protection of the boiler may be substituted. Not required where a fixed carbon dioxide system is installed.⁷ Not required on vessels of less than 300 gross tons if fuel has a flash-point higher than 110° F.⁸ Not required on vessels of less than 300 gross tons.

(d) Hand portable fire extinguishers and their stations shall be numbered in accordance with § 196.37-15 of this subchapter.

(e) Hand portable or semiportable extinguishers, which are required on their nameplates to be protected from freezing, shall not be located where freezing temperatures may be expected.

§ 193.50-15 Spare charges.

(a) For all vessels spare charges shall be carried for at least 50 percent of each size and each variety, i.e., foam, soda-acid, carbon dioxide, etc., of hand portable fire extinguishers required by § 193.50-10(a). However, if the unit is of such variety that it cannot be readily recharged by the vessel's personnel, one spare unit of the same classification shall be carried in lieu of spare

charges for all such units of the same size and variety.

(b) Spare charges shall be so packaged as to minimize the hazards to personnel while recharging the units. Acid shall be contained in a Crown stopper type of bottle.

§193.50-20 Semiportable fire extinguishers.

(a) The frame or support of each size III, IV, and V fire extinguisher required by Table 193.50-10(a) must be welded or otherwise permanently attached to a bulkhead or deck.

(b) If an approved size III, IV, or V fire extinguisher has wheels and is not required by Table 193.50-10(a), it must be securely stowed when not in use to prevent it from rolling out of control under heavy sea conditions.

[CGD 77-039, 44 FR 34133, June 14, 1979]

§193.50-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 193.50-5 through 193.50-15 shall be complied with insofar as the number and general type of equipment is concerned.

(2) Existing installations previously approved, but not meeting the applicable requirements of §§ 193.50-5 through 193.50-15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection, and they are in general agreement with the degree of safety prescribed by Table 193.50-10(a). Minor modifications may be made to the same standard as the original installation: *Provided*, That in no case will a greater departure from the standards of Table 193.50-10(a) be permitted than presently exists.

(3) All new equipment and installations shall meet the applicable requirements in this subpart for new vessels.

Subpart 193.60—Fire Axes

§ 193.60-1 Application.

(a) The provisions of this subpart shall apply to all vessels other than unmanned barges.

(b) Unmanned barges are exempted from the requirements in this subpart. However, if such barges carry on board fire axes, then such equipment shall be in accordance with this subpart for manned barges.

§ 193.60-5 Number required.

(a) All vessels shall carry at least the minimum number of fire axes as set forth in Table 193.60-5(a). Nothing in this paragraph shall be construed as limiting the Officer in Charge, Marine Inspection, from requiring such additional fire axes as he deems necessary for the proper protection of the vessel.

TABLE 193.60-5(a)

Gross tons		Number of axes
Over	Not over	
	50	1
50	200	2
200	500	4
500	1,000	6
1,000		8

§ 193.60-10 Location.

(a) Fire axes shall be distributed throughout the spaces available to persons on board so as to be most readily available in the event of emergency.

(b) If fire axes are not located in the open, or behind glass, so that they may be readily seen, they may be placed in enclosures together with the firehose, provided such enclosures are marked as required by § 196.37-15 of this subchapter.

PART 194—HANDLING, USE AND CONTROL OF EXPLOSIVES AND OTHER HAZARDOUS MATERIALS

Subpart 194.01—Application

Sec.

194.01-1 General.

Subpart 194.05—Stowage and Marking

- 194.05-1 General.
- 194.05-3 Chemical stores.
- 194.05-5 Chemicals in the chemistry laboratory.
- 194.05-7 Explosives—Detail requirements.
- 194.05-9 Flammable liquid chemical stores—Detail requirements.
- 194.05-11 Flammable solids and oxidizing materials—Detail requirements.
- 194.05-13 Corrosive liquids as chemical stores—Detail requirements.
- 194.05-15 Compressed gases as chemical stores—Detail requirements.
- 194.05-17 Poisonous articles as chemical stores—Detail requirements.
- 194.05-19 Combustible liquids as chemical stores—Detail requirements.
- 194.05-21 Other regulated materials.

Subpart 194.10—Magazines

- 194.10-1 Application.
- 194.10-5 Type and location.
- 194.10-10 Integral magazine construction.
- 194.10-15 Magazine van construction.
- 194.10-20 Magazine chest construction.
- 194.10-25 Ventilation.
- 194.10-30 Magazine sprinklers.
- 194.10-35 Labeling.

Subpart 194.15—Chemistry Laboratory and Scientific Laboratory

- 194.15-1 General.
- 194.15-3 Responsibility.
- 194.15-5 Ventilation.
- 194.15-7 Fire protection.
- 194.15-9 Storage.
- 194.15-11 Flushing systems.
- 194.15-15 Chemicals other than compressed gases.
- 194.15-17 Compressed gases other than inert gases.
- 194.15-19 Electrical.

Subpart 194.20—Chemical Stores and/or Storerooms

- 194.20-1 General.
- 194.20-3 Responsibility.
- 194.20-5 Ventilation.
- 194.20-7 Fire protection.
- 194.20-9 Storage.
- 194.20-11 Flushing systems.

Sec.

- 194.20-15 Chemical stores other than compressed gases.
- 194.20-17 Compressed gases.
- 194.20-19 Piping and electrical requirements.

Subpart 194.90—Vessels Contracted for Prior to March 1, 1968

194.90-1 Requirements.

AUTHORITY: 46 U.S.C. 2113, 3306; 49 U.S.C. App. 1804; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGFR 67-83, 33 FR 1151, Jan. 27, 1968, unless otherwise noted.

Subpart 194.01—Application

§ 194.01-1 General.

(a) The provisions of this part, with the exception of Subpart 194.90, shall apply to all vessels other than non-self-propelled vessels of less than 300 gross tons contracted for on or after March 1, 1968.

(b) Non-self-propelled vessels of less than 300 gross tons shall not be subject to the provisions of this part except as provided otherwise by paragraph (c) of this section.

(c) Non-self-propelled vessels of less than 300 gross tons shall be governed by the applicable portions of 49 CFR Parts 171-179, and the applicable portions of 33 CFR Parts 6 and 121 to 126, inclusively. Alternately, the owner, at his option, may comply with the provisions of this part.

(d) Vessels contracted for prior to March 1, 1968, shall meet the requirements of Subpart 194.90.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36026, Sept. 16, 1988]

Subpart 194.05—Stowage and Marking

§ 194.05-1 General.

(a) The master shall be held responsible for and shall require the proper handling, stowage, and marking of all chemical stores and reagents.

(b) Chemical stores shall be stowed in a chemical storeroom in approved drums, barrels, or other packages, properly marked and labeled, as prescribed by 49 CFR Part 172 for those

specific commodities, except that those chemical stores excluded from the storeroom by §§ 194.20-15 and 194.20-17, and those chemical stores not desired to be located in a chemical storeroom, shall be stored in accordance with the appropriate provisions of 49 CFR Part 176 insofar as such regulations apply to cargo vessels.

(c) Ships' stores shall be regulated in accordance with the appropriate provisions of Part 147 of Subchapter N (Dangerous Cargoes) of this chapter.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-3 Chemical stores.

(a) Chemical stores are those chemicals which possess one or more of the following properties and shall be classed, marked and labeled in accordance with 49 CFR Part 172:

- (1) Explosives.
- (2) Flammable liquids.
- (3) Flammable solids.
- (4) Oxidizing materials.
- (5) Corrosive materials.
- (6) Compressed gasses.
- (7) Poisons.
- (8) Combustible liquids.

(9) Other Regulated Materials (DOT Hazard Class "ORM").

(b) Substances for use in the chemistry laboratory, or to be stored in the chemical storeroom and generally covered under paragraph (a) of this section but not specifically listed by name in 49 CFR 172.101 must be approved by the Commandant prior to being carried on board a vessel.

[CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-5 Chemicals in the chemistry laboratory.

(a) Small working quantities of chemical stores in the chemistry laboratory which have been removed from the approved shipping container need not be marked or labeled as required by 49 CFR Part 172. Reagent containers in the laboratory shall be marked to show at least the following:

- (1) Common chemical name.
- (2) Hazards, if any; e.g., flammable, poison, etc.

(b) In the interest of facilitating scientific activities, no restrictions are in-

tended which will limit the variety of chemical stores which may be used in the chemical laboratory. With the knowledge and approval of the master, the laboratory supervisor may be responsible for stowage and use of materials within the laboratory and chemical storeroom.

(c) Reagent containers shall be properly secured against shifting and spillage. Insofar as practical all reagents shall be stowed in suitable, unbreakable containers.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-7 Explosives—Detail requirements.

(a) Except as otherwise provided by this part, Class A explosives and blasting caps shall be carried in magazines specifically fitted for that purpose as described in Subpart 194.10.

(b) Military explosives shall be identified by their appropriate DOT classification.

(c)(1) Compatibility of magazine stowage shall be in accordance with 49 CFR 176.83.

(2) Magazine chests, magazine vans, and deck stowage areas shall be separated by a distance of at least 25 feet if their contents are incompatible with each other. Reduction of this distance to allow for special configurations will be permitted only if specifically approved by the Commandant.

(d) On deck stowage of unfused depth charges or other unfused case type military explosives is authorized as follows:

(1) Stowage shall be in a location reasonably protected from the full force of boarding seas.

(2) Stowage shall be protected from direct exposure to the sun by overhead decks, awnings, or tarpaulins. Decks shall be constructed of incombustible materials; awnings and tarpaulins shall be fire-resistant and/or flame proof fabric.

(3) Items shall be properly secured by using existing vessel structures such as bulwarks, hatch coamings, shelter deck and poop bulkheads as part boundaries and effectively closing in the items by fitting angle bar clos-

§ 194.05-9

ing means secured by bolting to clips or other parts of the ship's structure. Lashing of deck stowage is permitted provided eye pads or other suitable means are fitted to secure such lashings and provided the individual items are of such a configuration as to prevent slippage of the lashings. Shoring and dunnage may be used as necessary to further facilitate the security of the stowage.

(4) Stowage area shall be selected so as to provide for safe access to all internal spaces and to all parts of the deck required to be used in navigation and working of the vessel. Stowage shall not be on or under the bridge, or navigating deck, or within a distance, in a horizontal plane, of 25 feet of an operating or embarkation point of any lifeboat or raft. Reduction of this distance to allow for special configurations will be permitted only if specifically approved by the Commandant.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-9 Flammable liquid chemical stores—Detail requirements.

(a) Flammable liquids as chemical stores and reagents are governed by Subparts 194.15 and 194.20.

(b) Other flammable liquids are regulated by the appropriate portions of 49 CFR Parts 172, 173, and 176 or Part 147 of Subchapter N (Dangerous Cargoes) of this chapter.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988; 53 FR 46872, Nov. 21, 1988]

§ 194.05-11 Flammable solids and oxidizing materials—Detail requirements.

(a) Flammable solids and oxidizing materials used as chemical stores and reagents are governed by Subparts 194.15 and 194.20.

(b) Oxidizing materials used as blasting agents are regulated by the appropriate portions of 49 CFR Parts 172, 173, and 176.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988; 53 FR 46872, Nov. 21, 1988]

46 CFR Ch. I (10-1-90 Edition)

§ 194.05-13 Corrosive liquids as chemical stores—Detail requirements.

(a) Corrosive liquids as chemical stores and reagents are governed by Subparts 194.15 and 194.20.

(b) Other corrosive liquids are regulated by the appropriate portions of 49 CFR Parts 172, 173, and 176 or Part 147 of Subchapter N (Dangerous Cargoes) of this chapter.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-15 Compressed gases as chemical stores—Detail requirements.

(a) Compressed gases as chemical stores and reagents are governed by Subparts 194.15 and 194.20.

(b) Other compressed gases are regulated in accordance with the appropriate portions of 49 CFR Parts 172, 173, and 176 or Part 147 of Subchapter N (Dangerous Cargoes) of this chapter.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-17 Poisonous articles as chemical stores—Detail requirements.

(a) Poisonous articles as chemical stores and reagents shall be governed by Subparts 194.15 and 194.20.

(b) Other poisonous articles shall be regulated by the appropriate portions of 49 CFR Parts 172, 173, and 176 or Part 147 of Subchapter N (Dangerous Cargoes) of this chapter.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-19 Combustible liquids as chemical stores—Detail requirements.

(a) Combustible liquid chemical stores and reagents shall be governed by Subparts 194.15 and 194.20.

(b) Other combustible liquids shall be regulated by the appropriate portions of 49 CFR Parts 172, 173, and 176 or Part 147 of Subchapter N (Dangerous Cargoes) of this chapter.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.05-21 Other regulated materials.

(a) Other Regulated Materials (DOT Hazard Class "ORM") as chemical stores and reagents shall be governed by appropriate portions of Subparts 194.15 and 194.20 of this part.

(b) Other Regulated Materials (DOT Hazard Class "ORM") which are not chemical stores and reagents shall be regulated by the appropriate portions of 49 CFR Parts 172, 173, and 176.

[CGD 86-033, 53 FR 36027, Sept. 16, 1988]

Subpart 194.10—Magazines

§ 194.10-1 Application.

(a) The provisions of this subpart apply to the construction of integral magazines, magazine vans, and magazine chests.

(b) Loading, loading procedures, shipper's requirements, and other features not related to the construction of magazines shall be in accordance with the applicable provisions of 49 CFR Parts 173 and 176 and 33 CFR Part 6 and Parts 121 to 126, inclusive.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.10-5 Type and location.

(a) *Integral magazines.* (1) Magazines shall be of permanent construction located below the freeboard deck and where practicable below the waterline.

(2) Magazines shall not be located in horizontal proximity to or below accommodation spaces.

(3) Magazines shall not be located adjacent to the collision bulkhead, nor in bearing with a bulkhead forming the boilerroom, engineroom, gallery, or other high fire hazard area boundary. If it is necessary to construct the magazine in proximity to these areas, a cofferdam space of at least 2 feet shall be provided between the bulkhead or deck involved and the magazine. Such a cofferdam shall be provided with suitable ventilation and shall not be used for storage purposes.

(b) *Magazine vans.* (1) Magazine vans may be installed on deck in a location protected from boarding seas. The location selected shall not impair access to accommodations or other

spaces necessary to the safe working and navigation of the vessel and shall not be within 15 feet of ventilation terminals emitting warm air or hazardous vapors, such as from galleys and pumprooms, or within 10 feet of any unshielded radio apparatus or antenna lead.

(2) Magazine vans may be installed below decks in holds provided the hold location meets the location requirements for integral magazines. The cofferdam requirement of paragraph (a)(3) of this section is considered as fulfilled if the van is of steel construction. Holds so utilized shall not be used for stowage of other hazardous materials covered by 49 CFR Parts 171-179. The stowage of other explosives or oxidizing materials in the same hold is permitted in accordance with the requirements of 49 CFR Part 176.

(c) *Magazine chests.* (1) Magazine chests shall be located on the weather decks in a position suitable for jettisoning the contents.

(2) Magazine chests shall be set off at least 4 inches from decks and deckhouse.

(3) Magazine chests shall not be located within 15 feet of ventilation terminals emitting warm air or hazardous vapors, such as from galleys and pumprooms.

(4) Magazine chests intended for the stowage of blasting caps, detonators, or boosters, in addition to the requirements in this paragraph, shall not be stowed within 10 feet of any unshielded radio apparatus or antenna leads.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.10-10 Integral magazine construction.

(a) Magazines shall be of permanent watertight construction. Bulkheads and decks, including the deck overhead, which are common with store-rooms or workshops shall be of A-15 construction as defined by § 72.05-10 of Subchapter H (Passenger Vessels) of this chapter. Flush construction shall be employed where practicable.

(b) Where the shell or unsheathed weather decks form boundaries of the

§ 194.10-15

magazine spaces suitable approved incombustible thermal insulation shall be provided to prevent condensation of moisture.

(c) Where a tank top forms the magazine deck it shall be insulated with an approved deck covering to prevent condensation of moisture. Tank top manholes shall not be installed in magazines.

(d) Light fixtures shall be of an approved type equipped with globes and guards. Control of the lighting system shall be from a location external to the magazine. An indicator light shall be provided at the switch location to indicate when the lighting circuits are energized. Other electrical equipment and wiring shall not be installed within or pass through the magazine. Electrical cables enclosed in a watertight trunk are permitted.

(e) Piping, other than fresh or salt water service and drainage system, shall not be routed through magazines except as required for the magazines themselves. Other piping systems enclosed in a watertight trunk are permitted.

(f) Access doors for the magazine, or magazine groups, shall be of substantial watertight construction and be provided with means whereby they may be securely locked.

(g) Racks, stanchions, battens, and other devices shall be installed to provide rigid and safe stowage of explosives in their approved shipping containers with a minimum of dunnage.

(h) Decks shall be covered with a permanent nonslip nonspark covering.

§ 194.10-15 Magazine van construction.

(a) Vans shall be of substantial metal construction. Their interior shall be insulated with an approved incombustible insulation to the standards required for A-15 divisional bulkheads as prescribed in Part 72 of Subchapter H (Passenger Vessels) of this chapter. The interior shall be lined flush with incombustible materials.

(b) Lighting fixtures, if installed, shall be of an approved type equipped with globes and guards. All electrical installations shall meet the applicable requirements of Subchapter J (Electrical Engineering) of this chapter. The electrical terminals for connections to

46 CFR Ch. I (10-1-90 Edition)

the ship's electrical system shall be of watertight construction and bear a label plate denoting the power requirement of the van.

(c) Access doors and ventilation closures shall be of watertight construction. Doors shall be provided with means whereby they may be securely locked.

(d) Vans shall be provided with suitable pads and clips for securing to the deck and for installation of wire rope sway braces.

(e) Vans shall bear a label plate stating light weight, gross weight and weight of explosives. Gross weight shall not exceed 250 pounds per square foot of deck area.

§ 194.10-20 Magazine chest construction.

(a) Magazine chests shall be of watertight metal construction with flush interior. The body and lid shall have a minimum thickness of $\frac{1}{4}$ inch.

(b) Permanent sun shields shall be provided for sides and top including the lid. These shall have a minimum thickness of $\frac{1}{4}$ -inch aluminum or 16-gage steel. Side shields shall be offset from the body a distance of 1 inch. The top shield shall be offset a distance of $1\frac{1}{2}$ inches. Sun shields may be omitted when chests are installed "on deck protected," shielded from direct exposure to the sun.

(c) Chests shall be limited to a gross capacity of 100 cubic feet.

(d) Chests shall be secured to the vessel's structure by means of permanently installed foundation clips or bolts or a combination thereof. Lashings will not be acceptable.

(e) Chests shall be provided with substantial hasps and staples for locking purposes.

§ 194.10-25 Ventilation.

(a) *Integral magazines.* (1) All integral magazines shall be provided with natural or mechanical ventilation. Design calculations shall be submitted demonstrating that the system has sufficient capacity to maintain the magazine temperature below 100° F. with 88° F. weather air. Mechanical cooling may be used where ventilation requirements exceed 1,500 cubic feet per minute.

(2) Ventilation systems shall be of watertight construction and shall serve no other space. Weather cowls shall be provided with a double layer of wire screen of not less than ¼-inch mesh. Metal watertight closures shall be provided for use when the ventilation system is not in operation. A 2-inch IPS bypass with check valve shall be provided in parallel with at least one of the ventilation closures to prevent pressure buildup.

(b) *Magazine vans.* (1) All magazine vans shall be provided with natural ventilation sufficient to maintain the inside air temperature below 130° F. with an assumed outside temperature of 115° F.

(2) Ventilation supply weather openings shall be located at least 6 feet above the deck. Exhaust terminals shall be located in the van overhead. Covers or weather cowls with a double layer of wire screen of not less than ¼-inch mesh shall be provided for protection of weather openings.

§ 194.10-30 Magazine sprinklers.

(a) *Sprinkler system required.* (1) A manual control, hydraulic control, or automatic sprinkler system shall be installed in each magazine or magazine group. The control valve shall generally be in accordance with Specification MIL-V-17501 insofar as materials and test fittings are concerned. All systems shall be remotely operable from a control station on the freeboard deck and manually operable at the control valve location.

(2) Where automatic systems are installed sprinkler heads shall be of the open head design so as to permit either manual or automatic operation.

(3) Sprinkler systems shall be designed in accordance with the requirements of Part 76 of Subchapter H (Passenger Vessels) of this chapter. Minimum total system capacity shall be based on 0.8 gallon per minute per square foot of overhead area.

(4) The normally required fire pumps may be used for magazine sprinkling purposes. However, the use of the magazine sprinkling system shall not interfere with the simultaneous use of the fire main system.

(b) *Magazine vans.* (1) A manual control sprinkler system shall be in-

stalled in each magazine van. The system shall be connected to the nearest fire main outlet by jumper hose. The hose shall be protected from physical damage by a grating or similar arrangement. The fire station valve shall serve as the sprinkler control valve.

(2) Sprinkler systems shall be designed in accordance with the requirements of Part 76 of Subchapter H (Passenger Vessels) of this chapter, except that the system capacity shall be sufficient to provide a coverage of 0.4 gallon per minute per square foot of overhead area.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 82-063b, 48 FR 4783, Feb. 3, 1983]

§ 194.10-35 Labeling.

(a) Labeling shall be in 3-inch block type lettering. Letters shall be red or white, whichever provides the better contrast against the background. On small chests the labeling size may be reduced to that consistent with the size of the chest so that the inscription may be placed in its entirety on the side or top.

(b) The access door to magazines and magazine vans shall bear the inscription:

MAGAZINE

KEEP OPEN LIGHTS AND FIRE AWAY

KEEP DOOR CLOSED

REMOVE MATCHES AND LIGHTERS
PRIOR TO ENTERING

(c) Magazine chests shall be marked in a conspicuous location, preferably the top, with the inscription:

MAGAZINE CHEST

KEEP OPEN LIGHTS AND FIRE AWAY

(d) Magazine chests used for blasting caps, detonators, or boosters shall be marked in a conspicuous location with the inscription as appropriate:

§ 194.15-1

BLASTING CAP LOCKER

or

DETONATOR LOCKER

or

BOOSTER LOCKER

KEEP OPEN LIGHTS AND FIRE AWAY

(e) Magazine van, unless specifically approved as a portable magazine under provisions of 49 CFR 176.150 shall bear the additional statements on each side:

MAGAZINE

WARNING

DO NOT LIFT WITH CONTENTS

(f) Control locations for magazine sprinkler systems, in addition to the operating instructions required by § 76.20-20 of Subchapter H (Passenger Vessels) of this chapter shall bear the inscription:

MAGAZINE SPRINKLER CONTROL

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

Subpart 194.15—Chemistry Laboratory and Scientific Laboratory

§ 194.15-1 General.

(a) Chemical and scientific laboratories shall be considered service areas, and as such shall be subject to the applicable requirements of § 190.07-10(d).

(1) Incombustible materials shall be used, insofar as is reasonable and practicable, for permanently installed laboratory furnishings and equipment, such as desks, file and storage cabinets, waste paper baskets, work benches, chair frames, etc. Working surfaces where chemical stores are used shall be of incombustible material.

(2) Combustible materials may be used for other working surfaces and for temporary furnishings and equipment installed to facilitate a specific scientific mission.

(b) Storage of all equipment, materials, etc., and cleanliness shall be consistent with sound laboratory practices. All items shall be securely stowed.

46 CFR Ch. I (10-1-90 Edition)

(c) Provision shall be made for removal of chemical spills and protection of the deck. In areas where chemicals will commonly be used, deck shall be covered with a nonslip masonry or other suitably resistant material so fashioned that spillage shall be contained and easily removed.

(d) The access doors to the laboratory shall bear the inscription "Chemical Laboratory", or "Scientific Laboratory", in lettering meeting requirements of § 194.10-35(a).

§ 194.15-3 Responsibility.

(a) With the knowledge and approval of the master, the senior member of the scientific party embarked may supervise the safety and operation of the chemical laboratory.

(b) The laboratory supervisor shall:

(1) Maintain the highest standards of safe working conditions.

(2) Provide safeguards against hazardous undertakings.

(3) Educate personnel working in laboratory spaces to be alert for hazards.

§ 194.15-5 Ventilation.

(a) Operations, reactions or experiments which produce toxic, noxious or corrosive vapors shall be conducted under a suitably installed fume hood. The fume hood shall be equipped with an independent power exhaust ventilation system which terminates so as to prevent fumes from entering other portions of the vessel. The exhaust system of the fume hood shall be compatible with the ventilation system of the laboratory to prevent fumes from backing-up within the fume hood system. The terminals shall be equipped with acceptable flame screens.

(b) Chemical laboratories shall be equipped with power ventilation system of the exhaust type serving the entire laboratory for use in the event of spills or other emergencies. The system shall have a capacity sufficient to effect a complete change of air not more than 4 minutes based upon the volume of the compartment.

(1) Power ventilation units shall have nonsparking impellers and shall not produce a source of vapor ignition.

in either the compartment or the ventilation system associated with the compartment.

(2) The power ventilation system shall be interlocked with any other ventilation or air-conditioning system serving the laboratory in a manner to prevent the circulation of vapors to other spaces.

(3) This ventilation system shall be independent of any other ventilation system in the vessel. It shall serve no other space. It shall be of watertight construction.

(4) Ventilation exhaust outlets shall terminate more than 6 feet from any opening to the interior part of the vessel and from any possible source of vapor ignition.

(5) The control for the power ventilation system shall be conveniently located and marked in a manner to clearly identify the purpose of the control.

(c) Ventilation of air conditioning systems serving the chemical laboratory shall be designed so that air cannot be recirculated into an accommodation space.

§ 194.15-7 Fire protection.

(a) If a fixed or semiportable fire-fighting system is installed, it shall meet the applicable requirements in Part 193 of this subchapter. Other fire-fighting systems will be given special consideration by the Commandant.

(b) Portable fire extinguishers are required in accordance with Table 193.50-10(a) of this subchapter.

§ 194.15-9 Storage.

(a) Chemical stores mentioned in § 194.05-3 may be stored in small working quantities in the laboratory provided their containers are labeled in accordance with § 194.05-5(a).

(b) Chemical stores in greater than small laboratory working quantities shall be stored in approved containers in the chemical storeroom as prescribed in § 194.05-1(b).

(c) All material stored in any laboratory shall be securely stowed for sea with due consideration for chemical compatibility and safety standards.

§ 194.15-11 Flushing systems.

(a) Working spaces in which chemical stores are used shall be equipped with a fresh water supply shower.

(b) There shall be a provision for flushing away chemical spills.

§ 194.15-15 Chemicals other than compressed gases.

Chemicals, including those listed in 49 CFR Part 172, may be stored in small working quantities in the chemical laboratory.

[CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.15-17 Compressed gases other than inert gases.

(a) When, in consideration for a particular operation, compressed gases are needed within the laboratory, the cylinders may be temporarily installed in the laboratory, provided no more than one (1) cylinder of each gas is in the laboratory simultaneously. When transporting compressed gas cylinders to, from, or within the vessel, the cylinder valves shall be capped or otherwise protected in accordance with 49 CFR 173.301(g).

(b) Cylinders temporarily installed in the laboratory shall be securely stowed for sea. Appropriate safety signs shall be displayed and safety precautions observed.

(c) Oxygen and acetylene cylinders for use in ship's maintenance shall not be stored in the laboratory.

(d) Systems providing gas for bunsen burners or similar semipermanent/permanent installations shall be installed in accordance with Subpart 195.03 of Part 195.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.15-19 Electrical.

(a) All electrical equipment located within 18 inches of the deck of the chemical laboratory shall be in accordance with the applicable requirements of Subchapter J (Electrical Engineering) of this chapter for Class I, Division 2, hazardous locations. Electrical equipment located 18 inches or more above the deck may be of a type suitable

§ 194.20-1

ble for wet or dry locations in accordance with Subchapter J.

Subpart 194.20—Chemical Stores and/or Storerooms

§ 194.20-1 General.

(a) The chemical storerooms shall be considered to be service areas and as such shall be subject to the applicable requirements of § 190.07-10(d).

(1) Installed equipment, such as shelves and cabinets, shall be constructed of incombustible materials.

(2) The access doors to the storeroom shall bear the inscription "Chemical Storeroom."

(b) Storage and cleanliness shall be consistent with good chemical stowage practices.

(c) The deck of the chemical storeroom shall be of a nonskid material suitably resistant to chemical spills. Provision shall be made for the containment and removal of chemical spills.

(d) Chemical reactions and experiments shall not be conducted in the chemical storeroom.

(e) A storeroom, when used as a chemical storeroom, shall be exclusively for the stowage of chemical stores.

(f) All doors shall open in the direction of escape.

(g) Movement of chemical stores to, or from, the storeroom shall be accomplished utilizing suitable, portable containers. In no event shall piping systems, or similar arrangements, be permitted for transfer of chemical stores between the storeroom and the area in which the chemical stores are to be used.

§ 194.20-3 Responsibility.

(a) With the knowledge and approval of the master the senior member of the scientific party embarked may supervise the safety and operation of the chemical storerooms.

(b) The chemical storeroom supervisor shall:

(1) Maintain the highest standards of safe working conditions.

(2) Provide safeguards against hazardous undertakings.

(3) Educate personnel working in, and near, the storeroom to be alert for hazards.

46 CFR Ch. I (10-1-90 Edition)

§ 194.20-5 Ventilation.

(a) Chemical storerooms shall be equipped with a power ventilation system of exhaust type. The system shall have a capacity sufficient to effect a complete change of air in not more than 4 minutes based upon the volume of the compartment.

(1) Power ventilation units shall have nonsparking impellers and shall not produce a source of vapor ignition in either the compartment or the ventilation system associated with the compartment.

(2) This ventilation system shall be independent of any other ventilation system. It shall serve no other space in the vessel. It shall be of watertight construction.

(3) Inlets to exhaust ducts shall be provided and located at points where concentration of vapors may be expected. Ventilation exhaust outlets shall terminate more than 6 feet from any opening to the interior part of the vessel and from any possible source of vapor ignition. Terminals shall be fitted with acceptable flame screens.

(4) The control for the power ventilation system shall be conveniently located and marked in a manner to clearly identify the purpose of the control.

(b) Provisions shall be made so that the chemical storeroom will be ventilated before it is entered. An Indicator shall be provided outside the space to show that ventilation is being provided. In addition, the storeroom shall be marked "Danger—Ventilate Before Entering."

§ 194.20-7 Fire protection.

(a) Each chemical storeroom shall be protected by a fixed automatic carbon dioxide extinguishing system installed in accordance with Subpart 193.15 of Part 193 of this subchapter.

(b) Portable fire extinguishers are required in accordance with Table 193.50-10(a) of this subchapter.

§ 194.20-9 Storage.

(a) Chemical stores shall be stored in the chemical storeroom as prescribed in § 194.05-1(b).

(b) All items stored in the storeroom shall be secured against shifting and

with due consideration for chemical compatibility and safety standards.

(1) Items shall not be stowed on the deck.

(2) Shelving shall be so constructed as to provide a clear space of at least 4 inches between the bottom shelf and the deck.

§ 194.20-11 Flushing systems.

(a) Provision shall be made for flushing away chemical spills.

(b) If a drainage system is installed, it shall be separate from any other drainage system.

§ 194.20-15 Chemical stores other than compressed gases.

(a) Flammable liquids are excluded from the storeroom unless contained in properly marked and labeled metal safety cans not in excess of 5 gallons of each kind. Refer to Subpart 194.05 for applicable requirements governing quantities greater than 5 gallons.

(b) Combustible liquids in approved portable drums, barrels or containers not in excess of 55 gallons of each kind may be stored in the storeroom. Refer to Subpart 194.05 for applicable requirements governing quantities greater than 55 gallons.

(c) Containers when used for dispensing flammable and combustible liquids shall be equipped with automatic closing valves.

(d) Poisons listed in 49 CFR Part 172 may be stored in approved containers in the chemical storeroom.

(e) Explosives and oxidizing materials not for use in the chemical laboratory shall not be stored in the chemical storeroom.

(f) Chemical stores specifically mentioned in 49 CFR Part 172 may be carried in the chemical storeroom.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.20-17 Compressed gases.

(a) Nonflammable compressed gases (excluding oxygen) may be securely stowed in the storeroom: *Provided*, That no more than eight (8) cylinders total are stowed simultaneously in the same chemical storeroom.

(b) Flammable compressed gases and oxygen shall be stowed in accordance with 49 CFR Part 176, Subpart H.

(c) Compressed gas cylinders shall have valve protection in accordance with 49 CFR 173.301(g) and shall be safely stowed in a vertical position in suitable racks.

[CGFR 67-83, 33 FR 1151, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

§ 194.20-19 Piping and electrical requirements.

(a) Piping, electrical equipment, and wiring shall not be installed within or pass through a chemical storeroom except as required for the chemical storeroom itself.

(b) The electrical installation shall be in accordance with the applicable requirements of Subchapter J (Electrical Engineering) of this chapter for Class I, Division 1, Group C hazardous locations.

Subpart 194.90—Vessels Contracted for Prior to March 1, 1968

§ 194.90-1 Requirements.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved but not meeting the applicable requirements of Subparts 194.05 through 194.20 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be permitted to the same standards as the original design: *Provided*, That in no case will a greater departure from the standards of Subparts 194.05 through 194.20 be permitted than presently exists.

(2) All new installations, major alterations, and major replacements shall meet the applicable requirements in this part for new vessels.

(3) The general requirements of Subparts 194.05 through 194.20 shall apply unless in the opinion of the Officer in Charge, Marine Inspection, it is unreasonable or impracticable, or

Pt. 195

the arrangement or construction of the vessel makes it unnecessary.

PART 195—VESSEL CONTROL AND MISCELLANEOUS SYSTEMS AND EQUIPMENT

Subpart 195.01—Application

Sec.

195.01-1 General.

195.01-3 Incorporation by reference.

Subpart 195.03—Marine Engineering Systems

195.03-1 Installation and details.

Subpart 195.05—Electrical Engineering and Interior Communications Systems

195.05-1 Installation and details.

Subpart 195.07—Anchors, Chains, and Hawsers

195.07-1 Application.

195.07-5 Ocean, coastwise, or Great Lakes service.

195.07-10 Lakes, bays, and sounds, or river service.

195.07-90 Vessels contracted for prior to March 1, 1968.

Subpart 195.09—Scientific Equipment

195.09-1 Application.

195.09-5 General.

Subpart 195.11—Portable Vans and Tanks

195.11-1 Application.

195.11-5 Scope.

195.11-10 Design and construction of portable vans.

195.11-15 Plan approval and inspection.

195.11-20 Marking and label plate.

195.11-25 Loading and stowage.

195.11-30 Portable tanks.

Subpart 195.17—Radar

195.17-1 When required.

Subpart 195.19—Magnetic Compass and Gyrocompass

195.19-1 When required.

Subpart 195.27—Sounding Equipment

195.27-1 When required.

Subpart 195.30—Protection From Refrigerants

195.30-1 Application.

195.30-5 General.

195.30-15 Refrigeration masks.

46 CFR Ch. I (10-1-90 Edition)

Sec.

195.30-90 Vessels contracted for prior to March 1, 1968.

Subpart 195.35—Fireman's Outfit

195.35-1 Application.

195.35-5 General.

195.35-10 Fireman's outfit.

195.35-15 Stowage.

195.35-20 Spare charges.

195.35-90 Vessels contracted for prior to March 1, 1968.

Subpart 195.40—Pilot Boarding Equipment

195.40-1 Pilot boarding equipment.

AUTHORITY: 46 U.S.C. 2113, 3306; 49 U.S.C. App. 1804; E.O. 12234, 45 FR 58801, 3 CFR 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGFR 67-83, 33 FR 1156, Jan. 27, 1968, unless otherwise noted.

Subpart 195.01—Application

§ 195.01-1 General.

(a) The provisions of this part shall apply to all vessels except as specifically noted in this part.

§ 195.01-3 Incorporation by reference.

(a) Certain materials are incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a). To enforce any edition other than the one listed in paragraph (b) of this section, notice of the change must be published in the **FEDERAL REGISTER** and the material made available to the public. All approved material is on file at the Office of the Federal Register, Washington, DC 20408, and at the U.S. Coast Guard, Marine Technical and Hazardous Materials Division, 2100 Second Street SW., Washington, DC 20593-0001, and is available from the address indicated in paragraph (b).

(b) The material approved for incorporation by reference in this part, and the sections affected is:

AMERICAN SOCIETY FOR TESTING AND MATERIALS

1916 Race St., Philadelphia, PA 19103.

ASTM F1014-1986 Standard Specification for Flashlights on Vessels.

Sections affected—195.35-5(c).

[CGD 82-042, 53 FR 17706, May 18, 1988]

Subpart 195.03—Marine Engineering Systems

§ 195.03-1 Installation and details.

(a) The installation of all systems of marine engineering nature, together with the details of design, construction, and installation, shall be in accordance with the requirements of Chapter F (Marine Engineering) of this chapter. Systems of this type include the following:

- Engineering Systems.
- Engine and Ballast Systems.
- Exhaust Vent and Sounding Systems.
- Overboard Discharges and Shell Connections.
- Heating and Pressure Systems.
- Unrefined Petroleum Gas Systems.

Subpart 195.05—Electrical Engineering and Interior Communications Systems

§ 195.05-1 Installation and details.

(a) The installation of all systems of electrical engineering or interior communication nature, together with the details of design, construction, and installation shall be in accordance with the requirements of Subchapter E (Electrical Engineering) of this chapter. Systems of this type include the following:

- Ship's Service Generating Systems.
- Ship's Service Power Distribution Systems.
- Ship's Lighting Systems.
- Electric Propulsion and Propulsion Control Systems.
- Emergency Lighting and Power Systems.
- Electric Lifeboat Winch Systems.
- Electric Steering Gear and Steering Control Systems.
- Fire Detecting and Alarm Systems.
- Unpowered Telephone and Voice Tube Systems.
- Engine Order Telegraph Systems.
- Heeling Angle Indicator Systems.
- Refrigerated Spaces Alarm Systems.
- Navigation Lights Systems.
- Daylight Signaling Lights.
- Miscellaneous Machinery Alarms and Controls.
- General Alarm Systems.

Subpart 195.07—Anchors, Chains, and Hawsers

§ 195.07-1 Application.

(a) The provisions of this subpart, with the exception of § 195.07-90, shall apply to all vessels other than unmanned barges, contracted for on or after March 1, 1968.

(b) Vessels other than unmanned barges contracted for prior to March 1, 1968 shall meet the requirements of § 195.07-90.

§ 195.07-5 Ocean, coastwise, or Great Lakes service.

(a) Vessels in ocean, coastwise, or Great Lakes service shall be fitted with anchors, chains, and hawsers which shall be in general agreement with the standards established by the American Bureau of Shipping, see Subpart 188.35 of Part 188 of this subchapter.

(b) In addition to the provisions of paragraph (a) of this section, the following requirements and alternatives also apply:

(1) The American Bureau of Shipping rules relating to anchor equipment are mandatory, not a guide.

(2) Vessels under 200 feet (61 meters) in length and with an American Bureau of Shipping equipment number of less than 150 may be equipped with either:

(i) One anchor of the tabular weight and one-half the tabulated length of anchor chain listed in the applicable standard, or

(ii) Two anchors of one-half the tabular weight with the total length of anchor chain listed in the applicable standard provided both anchors are in a position that allows for ready use at all times and the windlass is capable of heaving in either anchor.

(c) Standards of other recognized classification societies may be used, in lieu of those established by the American Bureau of Shipping, upon approval by the Commandant.

[CGFR 67-83, 33 FR 1156, Jan. 27, 1968, as amended by CGD 87-013, 53 FR 20624, June 6, 1988]

§ 195.07-10

§ 195.07-10 Lakes, bays, and sounds, or river service.

(a) Vessels in lakes, bays, and sounds, or river service shall be fitted with such ground tackle and hawsers as deemed necessary by the Officer in Charge, Marine Inspection, depending upon the size of the vessel and the waters on which it operates.

§ 195.07-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) Existing arrangements, materials, installations, and facilities previously accepted or approved shall be considered satisfactory for the same service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. If the service of the vessel is changed, the suitability of the equipment will be established by the Officer in Charge, Marine Inspection.

(2) Minor repairs, alterations and replacements may be permitted to the same standards as the original installations. However, all new installations, major alterations, or major replacements shall meet the applicable requirements in this subpart for new vessels.

Subpart 195.09—Scientific Equipment

§ 195.09-1 Application.

(a) The provisions of this subpart shall apply to all vessels.

§ 195.09-5 General.

(a) All scientific equipment shall be designed to good commercial standards for such appliances, where applicable. Their electrical and pressure connections to the ship's supply shall be designed to marine standards.

(b) It shall be the responsibility of the owner to assure that the scientific equipment and their electrical or pressure connections to the ship's supply are maintained in such a manner as to be free of personnel hazards which may be caused by shock, temperature extremes, and moving parts.

46 CFR Ch. I (10-1-90 Edition)

Subpart 195.11—Portable Vans and Tanks

§ 195.11-1 Application.

(a) The provisions of this subpart shall apply to all vessels.

§ 195.11-5 Scope.

(a) The provisions in this subpart contain requirements for the design, construction, and stowage of portable vans, or tanks, which may be carried on board vessels. As used in this subpart, portable vans and tanks, are intended to include those temporary structures which may be carried aboard a vessel for a limited period of time and which are not permanently attached to the vessel.

(b) Special consideration may be given to the approval of portable structures which have been used for other purposes prior to proposed use on these vessels.

(c) As used in this subpart, portable vans, magazines, chests, etc., are intended to include those temporary structures which may be carried aboard a vessel for a limited period of time and which are not permanently attached to the vessel. The use, arrangement, and handling of such portable structures shall be approved by the Officer in Charge, Marine Inspection, prior to placement on board the vessel.

§ 195.11-10 Design and construction of portable vans.

(a) The design and material selection shall incorporate consideration of forces and environmental conditions to which the structure, attachments, and attachment points will be exposed.

(b) Steel, aluminum or other substantial material suitable for a marine environment may be used for construction of the basic van box.

(c) Accommodation vans are those intended to provide increased accommodation and related spaces of a temporary nature aboard a vessel. They shall, insofar as is reasonable and practicable, meet the applicable requirements of this subchapter for means of escape, arrangement, interior

§ 195.17-1

struction, and electrical installa-

(d) Power vans are those outfitted with electrical power generating machinery or batteries providing electricity for other vans or to scientific equipment. They shall insofar as is reasonable and practicable meet the applicable requirements of this subchapter for pressure piping, electrical, extinguishing and ventilation systems.

(e) Vans for the use or storage of chemical stores as defined in § 194.05-1 of this subchapter shall be constructed and outfitted in accordance with the applicable requirements of this subchapter.

(f) Vans containing scientific equipment are considered as within the definition of § 188.10-67 of this subchapter.

§ 195.11-15 Plan approval and inspection.

(a) Accommodation, power and chemical stores vans are subject to normal plan submission procedures of § 189.55 and to initial construction inspection. They shall also be subject to reinspection at two year intervals.

(b) Vans which have not undergone plan review and initial inspection may be accepted on a single voyage basis by the OCMI provided that they are in good condition and are free of hazards to personnel.

§ 195.11-20 Marking and label plate.

(a) All vans shall be provided with a label plate stating light weight, gross weight, and power requirements where applicable.

(b) For vans subject to inspection label plates shall provide space for the date of initial inspection, the marine inspector's initials, and stamp. Space shall also be provided for the reinspection stamping.

§ 195.11-25 Loading and stowage.

(a) Vans required to be inspected and bearing a current inspection stamp may be accepted for loading and stowage by the master of the vessel who shall insure that the van is in good condition.

(1) Vans containing scientific equipment and nonhazardous stores may be accepted by the master of the vessel

subject to his inspection to determine that electrical and pressure connections are in good condition and adequate for the service intended.

(b) The master shall insure that all vans are securely stowed and attached to the vessel to prevent shifting in a seaway. Portable vans to be occupied during the vessel's operation shall be securely attached to the vessel by welding, bolting, or equivalent means.

(c) Vans shall be located with due regard to access and to prevent recirculation of the discharge from the exhaust systems of the vessel.

(d) The loading of vans shall be in accordance with the stability requirements of the vessel.

(e) Prior to a vessel's departure, an entry shall be made in the official logbook for each portable van placed on board that such van and its stowage are in compliance with the applicable requirements in this subchapter.

§ 195.11-30 Portable tanks.

(a) All portable tanks, whether hazardous or nonhazardous commodities, shall be loaded and stowed in accordance with the stability requirements of the vessel.

(b) Portable tanks for flammable or combustible liquids in bulk (see § 188.05-30(b) of this subchapter) shall not be carried on vessels.

(c) Portable tanks containing other hazardous materials shall be in accordance with the requirements of 49 CFR Parts 171-179.

[CGFR 67-83, 33 FR 1156, Jan. 27, 1968, as amended by CGD 86-033, 53 FR 36027, Sept. 16, 1988]

Subpart 195.17—Radar

§ 195.17-1 When required.

All mechanically propelled vessels of 1,600 gross tons and over in ocean or coastwise service must be fitted with a marine radar system for surface navigation. Facilities for plotting radar readings must be provided on the bridge.

[CGD 75-074, 42 FR 5965, Jan. 31, 1977]

§ 195.19-1

Subpart 195.19—Magnetic Compass and Gyrocompass

§ 195.19-1 When required.

(a) All mechanically propelled vessels in ocean or coastwise service must be fitted with a magnetic compass.

(b) All mechanically propelled vessels of 1,600 gross tons and over in ocean or coastwise service must be fitted with a gyrocompass in addition to the magnetic compass.

(c) Each vessel must have an illuminated repeater for the gyrocompass required under paragraph (b) that is at the main steering stand unless the gyrocompass is illuminated and is at the main steering stand.

[CGD 75-074, 42 FR 5965, Jan. 31, 1977]

Subpart 195.27—Sounding Equipment

§ 195.27-1 When required.

(a) All mechanically propelled vessels of 500 gross tons and over shall be fitted with an efficient electronic deep-sea sounding apparatus and another independent means of obtaining deep-sea soundings, which may be a deep-sea hand lead.

[CGFR 67-83, 33 FR 1156, Jan. 27, 1968, as amended by CGD 75-074, 42 FR 5965, Jan. 31, 1977]

Subpart 195.30—Protection From Refrigerants

§ 195.30-1 Application.

(a) The provisions of this subpart, with the exception of § 195.30-90, shall apply to all vessels contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 195.30-90.

§ 195.30-5 General.

(a) All self-contained breathing apparatus and gas masks shall be of an approved type, constructed in accordance with Subpart 160.011 of Part 160 of Subchapter Q (Specifications) of this chapter.

(b) All equipment shall be maintained in an operative condition, and it shall be the responsibility of the master and chief engineer to ascertain

46 CFR Ch. I (10-1-90 Edition)

that a sufficient number of the crew are familiar with the operation of the equipment.

§ 195.30-15 Refrigeration masks.

(a) On all vessels equipped with refrigeration, other than small unit type refrigeration of not more than 20 cubic feet capacity, a gas mask, suitable for protection against each refrigerant used, or a self-contained breathing apparatus shall be provided. The refrigeration gas mask shall be stowed convenient to, but outside of the spaces containing the refrigeration equipment.

(b) A complete recharge shall be carried for each gas mask and self-contained breathing apparatus. The spare charge shall be stowed in the same location as the equipment it is to reactivate.

§ 195.30-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) The requirements of §§ 195.30-5 and 195.30-15 shall be complied with insofar as the number of items of equipment and the method of stowage of the equipment is concerned unless it can be shown to the satisfaction of the Officer in Charge, Marine Inspection, that other arrangements provide adequate protection.

(2) Existing items of equipment previously approved, but not meeting the applicable specifications set forth in § 195.30-5, may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection, but all new installations or replacements shall meet the applicable specifications or requirements in this subpart for new vessels.

Subpart 195.35—Fireman's Outfit

§ 195.35-1 Application.

(a) The provisions of this subpart, with the exception of § 195.35-90, shall apply to all vessels other than unmanned barges contracted for on or after March 1, 1968.

All vessels other than unmanned barges contracted for prior to March 1, 1968, shall meet the requirements in §§ 195.35-90.

All unmanned barges are exempt from the requirements in this subpart. However, if such barges carry on board a fireman's outfit, then such outfit shall be in accordance with the requirements in this subpart for manned barges.

195.35-5 General.

All flame safety lamps shall be of an approved type, constructed in accordance with Subpart 160.016 of Part 160 of Subchapter Q (Specifications) of this chapter.

All self-contained breathing apparatus shall be of an approved type, constructed in accordance with Subpart 160.011 of Part 160 of Subchapter Q (Specifications) of this chapter.

Flashlights shall be Type II or Type III, constructed and marked in accordance with ASTM F1014-1986.

All lifelines shall be of steel or galvanized wire rope. Steel wire rope shall be inherently corrosion-resistant or made so by galvanizing or tinning. Each end shall be fitted with a shackle with keeper having throat opening which can be readily slipped over a lifeline bolt. The total length of the lifeline shall be dependent upon the size and arrangement of the vessel, but no more than one line may be used together to achieve the necessary length. No individual length of lifeline may be less than 50 feet in length. The assembled lifeline shall have a minimum breaking strength of 5,000 pounds.

All equipment shall be maintained in an operative condition, and it shall be the responsibility of the master and chief engineer to ascertain that a sufficient number of the crew are familiar with the operation of the equipment.

Boots and gloves shall be of leather or other electrically nonconducting material.

The helmet shall provide effective protection against impact.

Protective clothing shall be of material that will protect the skin from the heat of fire and burns from

scalding steam. The outer surface shall be water resistant.

[CGFR 67-83, 33 FR 1156, Jan. 27, 1968, as amended by CGFR 69-72, 34 FR 17504, Oct. 29, 1969; CGD 82-042, 53 FR 17706, May 18, 1988]

§ 195.35-10 Fireman's outfit.

(a) A fireman's outfit shall consist of one self-contained breathing apparatus with lifeline attached, one flashlight, one flame safety lamp, a rigid helmet, boots and gloves, protective clothing, and one fire ax.

(b) Every vessel shall carry at least two firemen's outfits. The fireman's outfits must be stored in widely separated, accessible locations.

[CGFR 69-72, 34 FR 17504, Oct. 29, 1969, as amended by CGD 75-074, 42 FR 5965, Jan. 31, 1977]

§ 195.35-15 Stowage.

(a) Equipment shall be stowed in a convenient, accessible location as determined by the master, for use in case of emergency.

§ 195.35-20 Spare charges.

(a) A complete recharge shall be carried for each self-contained breathing apparatus, and a complete set of spare batteries shall be carried for each flashlight. The spares shall be stowed in the same location as the equipment it is to reactivate.

§ 195.35-90 Vessels contracted for prior to March 1, 1968.

(a) Vessels contracted for prior to March 1, 1968, shall meet the following requirements:

(1) The requirements of §§ 195.35-5 through 195.35-20 shall be complied with insofar as the number of items of equipment and the method of stowage of the equipment is concerned.

(2) Existing items of equipment previously approved, but not meeting the applicable specifications set forth in § 195.35-5, may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection, but all new installations or replacements shall meet the applicable specifications or requirements for new vessels.

§ 195.40-1

Subpart 195.40—Pilot Boarding Equipment

§ 195.40-1 Pilot boarding equipment.

(a) This section applies to each vessel that normally embarks or disembarks a pilot from a pilot boat or other vessel.

(b) Each vessel must have suitable pilot boarding equipment available for use of each side of the vessel. If a vessel has only one set of equipment, the equipment must be capable of being easily transferred to and rigged for use on either side of the vessel.

(c) Pilot boarding equipment must be capable of resting firmly against the vessel's side and be secured so that it is clear from overboard discharges.

(d) Each vessel must have lighting positioned to provide adequate illumination for the pilot boarding equipment and each point of access.

(e) Each vessel must have a point of access that has—

(1) A gateway in the rails or bulwark with adequate handholds; or

(2) Two handhold stanchions and a bulwark ladder that is securely attached to the bulwark rail and deck.

(f) The pilot boarding equipment required by paragraph (b) of this section must include at least one pilot ladder approved under Subpart 163.003 of this chapter. Each pilot ladder must be of a single length and capable of extending from the point of access to the water's edge during each condition of loading and trim, with an adverse list of 15°.

(g) Whenever the distance from the water's edge to the point of access is more than 30 feet, access from a pilot ladder to the vessel must be by way of an accommodation ladder or equally safe and convenient means.

(h) Pilot hoists, if used, must be approved under Subpart 163.002 of this chapter.

[CGD 79-032, 49 FR 25455, June 21, 1984]

46 CFR Ch. I (10-1-90 Edition)

PART 196—OPERATIONS

Subpart 196.01—Application

Sec.

196.01-1 General.

Subpart 196.03—Statutory Penalties

196.03-1 General.

Subpart 196.05—Notice to Mariners and Aids to Navigation

196.05-1 Duty of officers.

196.05-5 Charts and nautical publications.

Subpart 196.07—Notice and Reporting of Casualty and Voyage Records

196.07-1 Notice and reporting of casualty and voyage records.

Subpart 196.12—Stability Letter

196.12-1 Posting.

Subpart 196.13—Station Bills

196.13-1 Application.

196.13-5 Master's responsibility.

196.13-10 Duties of crew and scientific personnel.

196.13-15 Emergency signals.

196.13-20 Master to instruct crew and scientific personnel.

Subpart 196.14—Manning of Lifeboats and Liferafts

196.14-1 Application.

196.14-5 Person in command of lifeboat or liferaft.

196.14-10 Certificated lifeboatmen.

196.14-15 Motor-propelled lifeboat.

196.14-20 Lifeboat carrying a radiotelegraph and/or searchlight.

Subpart 196.15—Test, Drills, and Inspections

196.15-1 Application.

196.15-3 Steering gear, whistle, and means of communication.

196.15-5 Drafts.

196.15-10 Sanitation.

196.15-15 Examination of boilers and machinery.

196.15-20 Hatches and other openings.

196.15-25 Line-throwing appliances.

196.15-30 Emergency lighting and power systems.

196.15-35 Fire and boat drills.

196.15-37 Exposure suits.

196.15-40 Electric power-operated lifeboat winches.

- 45 Lifeboats, rescue boats, liferafts, boats, and buoyant apparatus.
- 50 Radio apparatus for lifeboats.
- 55 Requirements for fuel oil.
- 60 Firefighting equipment, general.
- 65 Emergency position indicating radio beacon (EPIRB).
- 70 Personal flotation device lights.

Subpart 196.17—Steering Orders

- 7-1 Method of communicating.

Subpart 196.18—Prevention of Oil Pollution

- 8-1 General.

Subpart 196.19—Maneuvering Characteristics

- 9-1 Data required.

Subpart 196.20—Whistling

- 10-1 Unnecessary whistling prohibited.

Subpart 196.23—Unauthorized Lights

- 13-1 Unauthorized lights prohibited.

Subpart 196.25—Searchlights

- 25-1 Improper use prohibited.

Subpart 196.27—Lookouts

- 27-1 Master's and officer's responsibility.
- 27-10 Reckless or negligent operation prohibited by law.

Subpart 196.30—Reports of Accidents, Repairs, and Unsafe Equipment

- 30-1 Repairs to boilers and pressure vessels.
- 30-5 Accidents to machinery.
- 30-10 Notice required before repair.
- 30-20 Breaking of safety valve seal.

Subpart 196.33—Cable Traveler

- 33-1 When required.

Subpart 196.34—Work Vests

- 34-1 Application.
- 34-5 Approved types of work vests.
- 34-10 Use.
- 34-15 Shipboard stowage.
- 34-20 Shipboard inspections.
- 34-25 Additional requirements for hybrid work vests.

Subpart 196.35—Logbook Entries

- 35-1 Application.
- 35-3 Logbooks and records.
- 35-5 Actions required to be logged.

Sec.

- 196.35-10 Official log entries.

Subpart 196.36—Display of Plans

- 196.36-1 When required.

Subpart 196.37—Markings for Fire and Emergency Equipment, etc.

- 196.37-1 Application.
- 196.37-3 General.
- 196.37-5 General alarm bell contact makers.
- 196.37-7 General alarm bells.
- 196.37-9 Carbon dioxide alarm.
- 196.37-10 Fire extinguishing system branch lines.
- 196.37-13 Fire extinguishing system controls.
- 196.37-15 Firehose stations.
- 196.37-20 Self-contained breathing apparatus and gas masks.
- 196.37-23 Hand portable fire extinguishers.
- 196.37-25 Emergency lights.
- 196.37-33 Instructions for changing steering gear.
- 196.37-35 Rudder orders.
- 196.37-37 Lifeboats.
- 196.37-40 Liferafts, lifeboats, and buoyant apparatus.
- 196.37-43 Life preservers, exposure suits, wood floats, and ring life buoys.
- 196.37-45 Firehose and axes.
- 196.37-47 Portable magazine chests.
- 196.37-49 Emergency position indicating radiobeacon (EPIRB).

Subpart 196.39—Posting Placards of Instructions for Launching and Inflating Inflatable Liferafts

- 196.39-1 When required.

Subpart 196.40—Markings on Vessels

- 196.40-1 Application.
- 196.40-5 Hull markings.
- 196.40-10 Draft marks.
- 196.40-15 Load line marks.

Subpart 196.43—Placard of Lifesaving Signals and Breeches Buoy Instructions

- 196.43-1 Application.
- 196.43-5 Availability.

Subpart 196.45—Carrying of Excess Steam

- 196.45-1 Master and chief engineer responsible.

Subpart 196.50—Compliance With Provisions of Certificate of Inspection

- 196.50-1 Master or person in charge responsible.

§ 196.01-1

Sec.

Subpart 196.53—Exhibition of License

196.53-1 Licensed officers.

Subpart 196.60—Motion Picture Film and Equipment

196.60-1 Type required.

Subpart 196.75—Prevention of Oil Pollution

196.75-1 General requirements.

Subpart 196.80—Explosive Handling Plan

196.80-1 Master's responsibility.

Subpart 196.85—Magazine Control

196.85-1 Magazine operation and control.

Subpart 196.90—Exposure Suits

196.90-1 Applicability.

196.90-5 Stowage of exposure suits.

196.90-10 Child size exposure suits required.

Subpart 196.95—Pilot Boarding Operations

196.95-1 Pilot boarding operations.

AUTHORITY: 33 U.S.C. 1321(j); 46 U.S.C. 2113, 3308, 5115, 6101; E.O. 11735, 38 FR 21243, 3 CFR, 1971-1975 Comp., p. 793; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGFR 67-83, 33 FR 1158, Jan. 27, 1968, unless otherwise noted.

Subpart 196.01—Application

§ 196.01-1 General.

(a) The provisions of this part shall apply to all vessels except as specifically noted in this part.

Subpart 196.03—Statutory Penalties

§ 196.03-1 General.

(a) The marine safety and criminal statutes provide penalties for the violation of the applicable provisions of this subchapter, which penalties, depending upon the gravity of the violation, are as follows:

(1) Assessment and collection of civil monetary penalty.

(2) Criminal prosecution where no loss of life results.

(3) Criminal prosecution for manslaughter where loss of life results from violation of statute or regulation

46 CFR Ch. I (10-1-90 Edition)

or from misconduct, negligence, or inattention to duty.

(4) Libel against vessel.

(b) In addition to the foregoing, any licensed or certificated personnel committing an act of misbehavior, negligence, unskillfulness, endangering life, violation of marine safety statutes or regulations or requirements thereunder, and incompetency shall be subject to proceedings under the provisions of 46 U.S.C. 239 and regulations thereunder (Part 137 of this chapter) with respect to suspension or revocation of license or certificate.

Subpart 196.05—Notice to Mariners and Aids to Navigation

§ 196.05-1 Duty of officers.

(a) Licensed deck officers are required to acquaint themselves with the latest information published by the Coast Guard and the U.S. Navy regarding aids to navigation. Neglect to do so is evidence of neglect of duty. It is desirable that all vessels have available in the pilothouse for convenient reference at all times a file of the applicable Notice to Mariners.

(b) Weekly Notices to Mariners (Great Lakes Edition) as published by the Commander, 9th Coast Guard District, contains announcements and information on changes in aids to navigation and other marine information affecting the safety of navigation on the Great Lakes. These notices may be obtained free of charge, by making application to Commander, 9th Coast Guard District.

(c) Weekly Notices to Mariners (worldwide coverage) are prepared jointly by the U.S. Naval Oceanographic Office, the U.S. Coast and Geodetic Survey and the U.S. Coast Guard. They include changes in aids to navigation in assembled form for the 1st, 3d, 5th, 7th, Greater Antilles Section, 8th, 11th, 12th, 13th, 14th, and 17th Coast Guard Districts. Foreign marine information is also included in these notices. These notices are available without charge from the U.S. Naval Oceanographic Office, Washington, DC 20390, Branch Oceanographic Offices, U.S. Collector of Customs of the major seaports in the United

es and are also on file in the U.S. insulates where they may be inspect-

FR 67-83, 33 FR 1158, Jan. 27, 1968, as ended by CGFR 68-32, 33 FR 5729, Apr. 1968]

5,05-5 Charts and nautical publications.

s appropriate for the intended age, all vessels except barges, and els operating exclusively on rivers, st carry adequate and up-to-date—

-) Charts;
-) Sailing directions;
-) Coast pilots;
-) Light lists;
-) Notices to mariners;
-) Tide tables;
-) Current tables; and
-) All other nautical publications necessary.¹

FD 75-074, 42 FR 5965, Jan. 31, 1977]

Subpart 196.07—Notice and Reporting of Casualty and Voyage Records

196.07-1 Notice and reporting of casualty and voyage records.

The requirements for providing notice and reporting of marine casualties and for retaining voyage records are contained in Part 4 of this chapter.

GD 84-099, 52 FR 47536, Dec. 14, 1987]

Subpart 196.12—Stability Letter

196.12-1 Posting.

If a stability letter is issued in accordance with the requirements in 196.120 of this chapter, it must be posted under glass or other suitable transparent material in the pilothouse of the vessel.

GD 79-023, 48 FR 51053, Nov. 4, 1983]

Subpart 196.13—Station: Bills

196.13-1 Application.

(a) The provisions of this subpart shall apply to all manned vessels.

¹ For United States vessels in or on the navigable waters of the United States, see CFR 164.33.

§ 196.13-5 Master's responsibility.

(a) A station bill (muster list) shall be prepared by the master of the vessel who shall be responsible to sign such station bill and to ascertain that it is duly posted in conspicuous locations in the vessel, particularly in the quarters of crew-members and scientific personnel, before the vessel sails.

§ 196.13-10 Duties of crew and scientific personnel.

(a) The station bill shall set forth the special duties and duty station of each member of the crew and scientific personnel for the various emergencies. The duties shall, as far as possible, be comparable with the regular work of the individual. The duties shall in general include the following, and in addition such other duties shall be assigned as are necessary in the case of the particular vessel for the proper handling of the particular emergency:

(1) The closing of airports, watertight doors, scuppers, sanitary, and other discharges which lead through the vessel's hull below the margin line, etc., the stopping of fans and ventilating systems, and the operation of all safety equipment.

(2) The preparation and launching of lifeboats and liferafts.

(3) The extinction of fire.

(4) The custody of the portable radio apparatus required by Subpart 192.55 of Part 192 of this subchapter.

§ 196.13-15 Emergency signals.

(a) *General.* The station bill shall set forth the various signals to be used for the calling of the crew to their stations and for giving instructions while at their stations. These signals shall be as set forth in this section.

(b) *Fire alarm stations.* (1) The fire alarm signal shall be a continuous blast of the whistle for a period of not less than 10 seconds supplemented by the continuous ringing of the general alarm bells for not less than 10 seconds.

(2) For dismissal from fire alarm stations, the general alarm shall be sounded three times supplemented by three short blasts of the whistle.

§ 196.13-20

(c) *Boat stations or boat drills.* (1) The signal for boat stations or boat drill shall be a succession of more than six short blasts followed by one long blast of the whistle supplemented by a comparable signal on the general alarm bells.

(2) Where whistle signals are used for handling the lifeboats, they shall be as follows:

(i) To lower lifeboats, one short blast.

(ii) To stop lowering the lifeboats, two short blasts.

(3) For dismissal from boat stations, there shall be three short blasts of the whistle.

(d) The master of any vessel may establish such other emergency signals, in addition to the above, as will provide that all officers, crew, and passengers will have positive and certain notice of the existing emergency.

§ 196.13-20 Master to instruct crew and scientific personnel.

(a) The master shall conduct such drill and give such instructions as are necessary to insure that all hands are familiar with their duties as specified in the station bill.

Subpart 196.14—Manning of Lifeboats and Liferafts

§ 196.14-1 Application.

(a) The provisions of this subpart shall apply to all vessels equipped with lifeboats and/or liferafts.

§ 196.14-5 Person in command of lifeboat or liferaft.

(a) For vessels in ocean service, a licensed deck officer, an able seaman, or a certificated lifeboatman shall be placed in charge of each lifeboat or liferaft. When two or more certificated lifeboatmen are required by Table 196.14-10(a) a second in command shall also be appointed, which person shall be either a licensed deck officer, an able seaman or a certificated lifeboatman.

(b) For vessels in services other than ocean service, the master shall appoint a person in command of each lifeboat and each liferaft. Except for vessels in river service, this person in command shall be either a licensed deck officer,

46 CFR Ch. I (10-1-90 Edition)

an able seaman, or a certificated lifeboatman.

(c) The person in charge of each lifeboat or liferaft shall have a list of its crew, and shall see that the persons under his orders are acquainted with their several duties.

§ 196.14-10 Certificated lifeboatmen.

(a) Except for vessels in river service, there shall be for each lifeboat and each liferaft a number of certificated lifeboatmen equal to that specified in Table 196.14-10(a): *Provided*, That vessels required to carry sufficient lifeboats on each side to accommodate all persons on board need only carry the certificated lifeboatmen required for the manning of the lifeboats on one side.

TABLE 196.14-10(a)

Prescribed complement of lifeboat or liferaft		Minimum number of lifeboatmen	
Over	Not over	Ocean service	All services other than ocean ¹
25	25	1	1
40	40	2	2
60	60	3	3
85	85	4	4
110	110	5	5
		6	6

¹ Certificated lifeboatmen are not required on vessels in river service.

(b) The allocation of the certificated lifeboatmen to each lifeboat and each liferaft shall be at the discretion of the master according to the circumstances.

§ 196.14-15 Motor-propelled lifeboat.

(a) The master shall assign to each motor-propelled lifeboat a man capable of working the motor.

§ 196.14-20 Lifeboat carrying a radiotelegraph and/or searchlight.

(a) The master shall assign to each lifeboat carrying a radiotelegraph and/or searchlight a man capable of operating such equipment.

196.15—Test, Drills, and Inspections

Application.

provisions of this subpart apply to all vessels.

Steering gear, whistle, and other communication.

All vessels making a voyage of more than 48 hours duration, the steering gear, the whistle, and other communication between the pilothouse and engine room shall be examined and tested by the master of the vessel within a period of not more than 12 hours prior to departure. On all other vessels similar examinations and tests shall be made at least once in every week.

The date of the test and the condition of the equipment shall be noted in the official logbook.

Drafts.

The master of every vessel on an ocean voyage, or Great Lakes voyage, shall enter the drafts of the vessel forward and aft, in the official logbook when leaving port.

Vessels subject to the requirements of Subchapter E (Load Lines) of the Code shall, at the time of departure from port on an ocean, coastwise, or Great Lakes voyage, the master shall enter in the official logbook a statement of the position of the loadline mark, port, and starboard, in relation to the surface of the water in which the vessel is then floating.

When an allowance for draft is made for the density of the water in which the vessel is floating, this density is to be entered in the official logbook.

Sanitation.

It shall be the duty of the master or chief engineer to see that the vessel, and, in particular, the quarters are in a clean and sanitary condition. The chief engineer shall be responsible for the sanitary condition of the engineering department.

Examination of boilers and machinery.

It shall be the duty of the chief engineer when he assumes charge of

the boilers and machinery of a vessel to examine them thoroughly. If any parts thereof are in unsatisfactory condition, or if the safety-valve seals are broken, the fact shall immediately be reported to the master, owner, or agent, and the Officer in Charge, Marine Inspection.

§ 196.15-20 Hatches and other openings.

(a) It shall be the responsibility of the master to assure himself that all exposed hatches and other openings in the hull of his vessel are closed, made properly watertight by the use of tarpaulins, gaskets or similar devices, and in all respects properly secured for sea before leaving protected waters.

(b) The openings to which this section applies are as follows:

(1) Exposed hatches.

(2) Gangway and other ports fitted below the freeboard deck.

(3) Port lights that are not accessible during navigation, including the dead lights for such port lights.

(c) The master at his discretion may permit hatches or other openings to remain uncovered or open, or to be uncovered or opened for reasonable purposes such as ship's maintenance while the vessel is being navigated: *Provided*, That in his opinion existing conditions warrant such action.

(d) In the event the master employs the discretionary provisions of this section after leaving port he shall cause appropriate entries to be made in the official log or equivalent thereof setting forth the time of uncovering, opening, closing or covering of the hatches or other openings to which this section applies and the circumstances warranting the action taken.

(e) The discretionary provisions of this section shall not relieve the master of his responsibility for the safety of his vessel, equipment or persons on board.

§ 196.15-25 Line-throwing appliances.

(a) On vessels fitted with a line-throwing appliance, it shall be the duty of the master to drill his crew in the use of such appliance, and require it to be fired at least once in every 3 months. Each drill shall be recorded in the vessel's official logbook. The serv-

§ 196.15-30

ice line shall not be used for drill purpose. The drill shall be conducted as follows:

(1) For impulse-projected rocket type, by actually firing the rocket with any flexible line of proper size and length, suitably faked or laid out.

(2) For shoulder gun type, by actually firing, using the regular cartridge and projectile with any flexible line of proper size and length, suitably faked or laid out.

(3) For Lyle gun type, by actually firing, using 2½ ounces of powder, the regular service projectile with any flexible line of proper size and length suitably faked or laid out.

§ 196.15-30 Emergency lighting and power systems.

(a) Where fitted, it shall be the duty of the master to see that the emergency lighting and power systems are operated and inspected at least once in each week that the vessel is navigated to be assured that the system is in proper operating condition.

(b) Internal combustion engine driven emergency generators shall be operated under load for at least 2 hours, at least once in each month that the vessel is navigated.

(c) Storage batteries for emergency lighting and power systems shall be tested at least once in each 6-month period that the vessel is navigated to demonstrate the ability of the storage battery to supply the emergency loads for the specified period of time.

(d) The date of the tests and the condition and performance of the apparatus shall be noted in the official logbook.

§ 196.15-35 Fire and boat drills.

(a) The master shall be responsible for conducting a fire and boat drill at least once in every week. The scheduling of such drills shall be at the discretion of the master except that at least one fire and boat drill shall be held within 24 hours of leaving a port if more than 25 percent of the crew have been replaced at that port.

(b) The fire and boat drill shall be conducted as if an actual emergency existed. All hands should report to their respective stations and be pre-

46 CFR Ch. I (10-1-90 Edition)

pared to perform the duties specified in the station bill.

(1) Fire pumps shall be started and sufficient number of outlets used to ascertain that the system is in proper working order.

(2) All rescue and safety equipment shall be brought from the emergency equipment lockers and the person designated shall demonstrate their ability to use the equipment.

(3) All watertight doors which are in use while the vessel is underway shall be operated.

(4) Weather permitting, lifeboat covers and strongbacks shall be removed, plugs or caps put in place, boat ladders secured in position, painter led forward and tended, and other lifesaving equipment prepared for use. The motor and hand-propelling gear of each lifeboat, where fitted, shall be operated for at least 5 minutes.

(5) In port, every lifeboat shall be swung out, if practicable, and the unobstructed lifeboats shall be lowered to the water and the crew exercised in the use of the oars and other means of propulsion if provided for the lifeboats. Although all lifeboats may not be used in a particular drill, care shall be taken that all lifeboats are given occasional use to ascertain that all lowering equipment is in proper order and the crew properly trained. The master shall be responsible that each lifeboat is lowered to the water at least once in each 3 months.

(6) When the vessel is underway and weather permitting, all lifeboats shall be swung out to ascertain that the gear is in proper order.

(7) The person in charge of each lifeboat and liferaft shall have a list of its crew and shall see that the men under his command are acquainted with their duties.

(8) Lifeboat equipment shall be examined at least once a month to insure that it is complete.

(c) An entry shall be made in the vessel's official logbook relative to each fire and boat drill setting forth the date and hour, length of time of the drill, numbers on the lifeboats swung out and numbers on those lowered, the length of time that motor and hand-propelled lifeboats are operated, the number of lengths of hose

ed, together with a statement as to the condition of all fire and lifesaving equipment, watertight door mechanisms, valves, etc. An entry shall also be made to report the monthly examination of the lifeboat equipment. If in any week the required fire and boat drills are not held or only partial drills are held, an entry shall be made stating the circumstances and extent of the drills held.

(d) A copy of these requirements, Form CG-809, Notice-Station Bill and Drills, shall be framed under glass or other transparent material and posted in a conspicuous place about the vessel. This form may be obtained from the Officer in Charge, Marine Inspection.

§ 196.15-37 Exposure suits.

The master of a vessel carrying exposure suits in accordance with Subpart 192.41 of this chapter shall make sure that each crew member and all scientific personnel either—

(a) Wear their exposure suits in at least one boat drill per month unless it is impracticable due to warm weather;

(b) Participate in at least one exposure suit drill per month that includes donning an exposure suit and being instructed in its use.

(CGD 82-075a, 49 FR 4488, Feb. 7, 1984)

§ 196.15-40 Electric power-operated lifeboat winches.

(a) It shall be the duty of the master to see that all lifeboat winch control apparatus, including motor controllers, emergency switches, master switches, are examined at least once in each 3 months. The examination shall include the removal of drain plugs and/or the opening of drain valves in such appliances to assure that the enclosures are free of water.

(b) The date of the examination required by this section and the condition of the equipment shall be noted in the official logbook.

§ 196.15-45 Lifeboats, rescue boats, liferafts, lifefloats, and buoyant apparatus.

(a)(1) It shall be the duty of the master or person in charge to see that the lifeboats, rescue boats, liferafts,

lifefloats, and buoyant apparatus are properly maintained at all times, and that all equipment for his vessel required by the regulations in this subchapter is provided, maintained, and replaced as indicated.

(2) The master shall assign to one or more officers the duty of seeing that the lifeboats, rescue boats, liferafts, lifefloats, and buoyant apparatus are at all times ready for immediate use.

(3) The decks on which lifeboats, rescue boats, liferafts, lifefloats, and buoyant apparatus are stowed shall be kept clear of cargo or any other obstructions which would interfere with the immediate launching of such equipment.

(b) Where motor-propelled lifeboats are carried, the motor of each lifeboat shall be operated in the ahead and astern position for a period of not less than 5 minutes at least once in each week.

(c) All lifeboats, rescue boats and rigid type liferafts shall be stripped, cleaned, and thoroughly overhauled at least once in every year. When lifeboats are removed from a vessel for this purpose on a rotational basis, the installation test prescribed by Subpart 192.35 of this subchapter need not be made.

(d) The fuel tanks of all motor-propelled lifeboats shall be emptied and the fuel changed at least once in every year.

(e) Vessels in ocean or coastwise service having a sufficient number of lifeboats on each side to accommodate all persons on board may care for their lifeboats at sea: *Provided*, That a number of lifeboats sufficient to accommodate all persons on board are fully equipped and ready for use at all times.

(f) Inflatable liferafts shall be serviced at an approved service facility every 12 months or not later than next inspection for certification provided the time since date of last servicing does not exceed 15 months. Except in emergencies no servicing should be done aboard vessels.

§ 196.15-50 Radio apparatus for lifeboats.

(a) It shall be the duty of the master to require that all batteries for all

§ 196.15-55

fixed and portable radio apparatus for lifeboats are brought up to full charge weekly if the batteries are of a type which require recharging.

(b) The transmitter shall be tested weekly using a suitable artificial aerial.

§ 196.15-55 Requirements for fuel oil.

(a) It shall be the duty of the chief engineer to cause an entry in the log to be made of each supply of fuel oil received on board, stating the quantity received, the name of the vendor, the name of the oil producer, and the flashpoint (closed cup test) for which it is certified by the producer.

(b) It shall be the further duty of the chief engineer to cause to be drawn and sealed and suitably labeled at the time the supply is received on board, a half-pint sample of each lot of fuel oil. These samples shall be preserved until the particular supply of oil is exhausted.

§ 196.15-60 Firefighting equipment, general.

(a) It shall be the duty of the owner, master, or person in charge to see that the vessel's firefighting equipment is at all times ready for use and that all such equipment required by the regulations in this subchapter is provided, maintained, and replaced as indicated.

(b) It shall be the duty of the owner, master, or person in charge to require and have performed at least once in every 12 months the tests and inspections of all hand portable fire extinguishers, semiportable fire extinguishing systems, and fixed fire extinguishing systems on board as described in Tables 189.25-20(a)(1) and 189.25-20(a)(2) in § 189.25-20(a) of this subchapter. The owner, master, or person in charge shall keep records of such tests and inspections showing the dates when performed, the number and/or other identification of each unit tested and inspected, and the name(s) of the person(s) and/or company conducting the tests and inspections. Such records shall be made available to the marine inspector upon request and shall be kept for the period of validity of the vessel's current certificate of inspection. Where practicable these records should be

46 CFR Ch. I (10-1-90 Edition)

kept in or with the vessel's logbook. The conduct of these tests and inspections does not relieve the owner, master, or person in charge of his responsibility to maintain this firefighting equipment in proper condition at all times.

§ 196.15-65 Emergency position indicating radio beacon (EPIRB).

The master shall make sure that each EPIRB other than an EPIRB in an inflatable liferaft—

(a) Is tested monthly, using a visual or audible output indicator to determine that it is operative; and—

(b) Has its battery replaced—

(1) Immediately after the EPIRB is used for purposes other than testing; and—

(2) On or before the marked expiration date.

[CGD 80-024, 49 FR 40410, Oct. 16, 1984]

§ 196.15-70 Personal flotation devices and lights.

(a) Each personal flotation device light that has a non-replaceable power source must be replaced on or before the expiration date of the power source.

(b) Each replaceable power source for a personal flotation device light must be replaced on or before its expiration date and the light must be replaced when it is no longer serviceable.

[CGD 76-028, 44 FR 38789, July 2, 1979]

Subpart 196.17—Steering Orders

§ 196.17-1 Method of communicating.

(a) All steering orders shall be given and communicated in terms of "right rudder" where it is intended that the top of the wheel, the rudder blade, and the head of the ship should go to the right, and "left rudder" where it is intended that the top of the wheel, the rudder blade, and the head of the ship should go to the left.

Subpart 196.18—Prevention of Oil Pollution

§ 196.18-1 General.

Each vessel must be operated to meet the requirements in—

(a) Section 311 of the Federal Water Pollution Control Act, as amended (86 Stat. 816; 33 U.S.C. 1321);

(b) Section 12 of the Oil Pollution Act, 1961, as amended (75 Stat. 404; 33 U.S.C. 1011); and

(c) 33 CFR Parts 151, 155 and 156.

[CGD 79-023, 48 FR 51053, Nov. 4, 1983]

Subpart 196.19—Maneuvering Characteristics

196.19-1 Data required.

For each ocean and coastwise vessel of 1,600 gross tons or over, the following apply:

(a) The following maneuvering information must be prominently displayed in the pilothouse on a fact sheet:

(1) For full and half speed, a turning circle diagram to port and starboard that shows the time and the distance of advance and transfer required to alter the course 90 degrees with maximum rudder angle and constant power settings.

(2) The time and distance to stop the vessel from full and half speed while maintaining approximately the initial heading with minimum application of rudder.

(3) For each vessel with a fixed propeller, a table of shaft revolutions per minute for a representative range of speeds.

(4) For each vessel with a controllable pitch propeller a table of control settings for a representative range of speeds.

(5) For each vessel that is fitted with an auxiliary device to assist in maneuvering, such as a bow thruster, a table of vessel speeds at which the auxiliary device is effective in maneuvering the vessel.

(b) The maneuvering information must be provided in the normal load and normal light condition with normal trim for a particular condition of loading assuming the following—

(1) Calm weather—wind 10 knots or less, calm sea;

(2) No current;

(3) Deep water conditions—water depth twice the vessel's draft or greater; and

(4) Clean hull.

(c) At the bottom of the fact sheet, the following statement must appear:

WARNING

The response of the (name of the vessel) may be different from those listed above if any of the following conditions, upon which the maneuvering information is based, are varied:

(1) Calm weather—wind 10 knots or less, calm sea;

(2) No current;

(3) Water depth twice the vessel's draft or greater.

(4) Clean hull; and

(5) Intermediate drafts or unusual trim.

(d) The information on the fact sheet must be:

(1) Verified six months after the vessel is placed in service; or

(2) Modified six months after the vessel is placed into service and verified within three months thereafter.

(e) The information that appears on the fact sheet may be obtained from:

(1) Trial trip observations;

(2) Model tests;

(3) Analytical calculations;

(4) Simulations;

(5) Information established from another vessel of similar hull form, power, rudder and propeller; or

(6) Any combination of the above.

The accuracy of the information in the fact sheet required is that attainable by ordinary shipboard navigation equipment.

(f) The requirements for information for fact sheets for specialized craft such as semi-submersibles, hydrofoils, hovercraft and other vessels of unusual design will be specified on a case by case basis.

[CGD 73-78, 40 FR 2689, Jan. 15, 1975]

Subpart 196.20—Whistling

§ 196.20-1 Unnecessary whistling prohibited.

(a) The unnecessary sounding of the vessel's whistle is prohibited within any harbor limits of the United States.

Subpart 196.23—Unauthorized Lights

§ 196.23-1 Unauthorized lights prohibited.

(a) The master shall not authorize or permit the carrying of any lights

§ 196.25-1

not required by law that in any way will interfere with the distinguishing of the signal lights.

Subpart 196.25—Searchlights

§ 196.25-1 Improper use prohibited.

(a) No person shall flash or cause to be flashed the rays of a searchlight or other blinding light onto the bridge or into the pilothouse of any vessel underway.

Subpart 196.27—Lookouts

§ 196.27-1 Master's and officer's responsibility.

(a) Nothing in this part shall exonerate any master or officer in command from the consequences of any neglect to keep a proper lookout or the neglect of any precaution which may be required by the ordinary practice of seamen or by the special circumstances of the case.

§ 196.27-10 Reckless or negligent operation prohibited by law.

(a) Subsection 13(a) of the act of April 25, 1940 (46 U.S.C. 5261), reads as follows:

No person shall operate any motorboat or any vessel in a reckless or negligent manner so as to endanger the life, limb, or property of any person. To "operate" means to navigate or otherwise use a motorboat or a vessel.

Subpart 196.30—Reports of Accidents, Repairs, and Unsafe Equipment

§ 196.30-1 Repairs to boilers and pressure vessels.

(a) Before making any repairs to boilers or unfired pressure vessels, the Chief Engineer shall submit a report covering the nature of the repairs to the Officer in Charge, Marine Inspection, at or nearest to the U.S. port where the repairs are to be made.

§ 196.30-5 Accidents to machinery.

(a) In the event of an accident to a boiler, unfired pressure vessel, or machinery tending to render the further use of the item unsafe until repairs are made, or if by ordinary wear such

46 CFR Ch. I (10-1-90 Edition)

items become unsafe, a report shall be made by the Chief Engineer immediately to the Officer in Charge, Marine Inspection, or if at sea, immediately upon arrival at port.

§ 196.30-10 Notice required before repair.

(a) No repairs or alterations, except in an emergency, shall be made to any lifesaving or fire detecting or extinguishing equipment without advance notice to the Officer in Charge, Marine Inspection. When emergency repairs or alterations have been made, notice shall be given to the Officer in Charge, Marine Inspection, as soon as practicable.

§ 196.30-20 Breaking of safety valve seal.

(a) If at any time it is necessary to break the seal on a safety valve for any purpose, the Chief Engineer shall advise the Officer in Charge, Marine Inspection, at the next port of call, giving the reason for breaking the seal and requesting that the valve be examined and adjusted by an inspector.

Subpart 196.33—Cable Traveler

§ 196.33-1 When required.

(a) On vessels where the distance between deckhouses is more than 150 feet, a wire cable shall be stretched between the deckhouses at all times when the vessel is navigating in other than protected waters. As many loose rings with lanyards shall be attached as deemed necessary by the master. In any case, a properly constructed raised catwalk or raised bridge or a below deck passage may be substituted for the required cable.

Subpart 196.34—Work Vests

§ 196.34-1 Application.

(a) Provisions of this subpart shall apply to all vessels.

§ 196.34-5 Approved types of work vests.

(a) Each buoyant work vest carried under the permissive authority of this section must be approved under—

(1) Subpart 160.053 of this chapter; or

(2) Subpart 160.077 of this chapter as a commercial hybrid PFD.

78-174A, 51 FR 4352, Feb. 4, 1986]

196.35-10 Use.

Approved buoyant work vests are considered to be items of safety apparatus and may be carried aboard vessels to be worn by crew members when working over or over the water under favorable working conditions. They shall be used under the supervision and control of designated ship's officers. When carried, such vests shall not be substituted in lieu of any portion of the required number of approved life preservers and shall not be substituted for the approved life preservers required to be worn during drills and emergencies.

196.35-15 Shipboard stowage.

The approved buoyant work vests shall be stowed separately from the regular stowage of approved life preservers.

The locations for the stowage of work vests shall be such as not to be confused with that for approved life preservers.

196.35-20 Shipboard inspections.

Each work vest shall be subject to examination by a marine inspector to determine its serviceability. If found to be satisfactory, it may be continued in service, but shall not be used by a marine inspector with a Coast Guard stamp. If a work vest is found not to be in a serviceable condition, then such work vest shall be removed from the vessel. If a work vest is beyond repair, it shall be destroyed or mutilated in the presence of a marine inspector so as to prevent its continued use as a work vest.

196.35-25 Additional requirements for hybrid work vests.

In addition to the other requirements in this subpart, commercial hybrid PFD's must be—

1. Used, stowed, and maintained in accordance with the procedures set forth in the manual required for these devices by § 160.077-29 of this chapter and any limitations(s) marked on the device; and

2. Of the same or similar design and use the same method of operation as

each other hybrid PFD carried on board.

[CGD 78-174A, 51 FR 4352, Feb. 4, 1986]

Subpart 196.35—Logbook Entries

§ 196.35-1 Application.

(a) Except as specifically noted, the provisions of this subpart shall apply to all manned vessels.

§ 196.35-3 Logbooks and records.

(a) Under various statutes or by regulations in this subchapter, all vessels with the exception of vessels operated exclusively on rivers of the United States are required to have certain logbooks or records, and, when the occasion arises, it is the duty of the master or person in charge to place therein specific entries as required by law or regulations in this chapter.

(b) R.S. 4290, as amended (46 U.S.C. 201), states: "Every vessel making voyages from a port in the United States to any foreign port, or, being of the burden of 75 tons or upward, from a port on the Atlantic to a port on the Pacific, or vice versa, shall have an official logbook; * * *." An official logbook is furnished gratuitously to masters by the U.S. Coast Guard as Form CG-706B or CG-706C, depending upon the number of persons employed as crew. A Coast Guard form official logbook may be utilized by oceanographic vessels or alternatively the owner may utilize his own format for an official logbook. Such logs shall be kept available for review by a marine inspector for a period of 1 year after the date to which the records refer or for the period of validity of the vessel's current certificate of inspection, whichever is longer.

(c) For vessels other than those required to have official logbooks by R.S. 4290 (46 U.S.C. 201), the owners, operators, and/or masters are to supply their own logs or records in any form desired, which will be considered to take the place of the official logbooks and may be used for the purpose of making entries therein as required by law or regulations in this subchapter. Such logs or records are not filed with the Officer in Charge, Marine Inspection, but shall be kept

§ 196.35-5

available for review by a marine inspector for a period of 1 year after the date to which the records refer, except for separate records of tests and inspections of firefighting equipment which shall be maintained with the vessel's logs for the period of validity of the vessel's certificate of inspection.

§ 196.35-5 Actions required to be logged.

(a) The actions and observations noted in this section shall be entered in the official logbook. This section contains no requirements which are not made in other portions of this subchapter, the items being merely grouped together for convenience.

(1) Fire and boat drills. Weekly. See § 196.15-35.

(2) Steering gear, whistle, and means of communication. Prior to departure. See § 196.15-3.

(3) Drafts and load line marks. Prior to leaving port, ocean, coastwise, and Great Lakes service only. See § 196.15-5.

(4) Line-throwing appliances. Once every 3 months. See § 196.15-25.

(5) Emergency lighting and power systems. Weekly and semiannually. See § 196.15-30.

(6) Electric power-operated lifeboat winches. Once every 3 months. See § 196.15-40.

(7) Fuel oil data: Upon receipt of fuel oil on board. See § 196.15-55.

(8) Hatches and other openings. All openings and closings required by § 196.15-20.

(9) Magazines and magazine chests. Maximum and minimum temperatures as required by § 196.85-1(b).

(10) Portable vans, prior to departure. See § 195.11-25(e) of this subchapter.

(11) Weight handling gear, prior to departure. See § 189.35-13(b) of this subchapter.

§ 196.35-10 Official log entries.

(a) On vessels where an official logbook is required by R.S. 4290 (46 U.S.C. 201), all items relative to the crew as well as with respect to any casualties which may occur, shall be entered in the official logbook as required by this law.

46 CFR Ch. I (10-1-90 Edition)

Subpart 196.36—Display of Plans

§ 196.36-1 When required.

(a) All manned vessels shall have permanently exhibited for the guidance of the officer in charge of the vessel, general arrangement plans showing for each deck the various fire retardant bulkheads together with particulars of the fire-detecting, manual alarm and fire extinguishing systems, fire doors, means of ingress to the different compartments, the ventilating systems including the positions of the dampers, the location of the remote means of stopping the fans, and the identification of the fans serving each section.

Subpart 196.37—Markings for Fire and Emergency Equipment, etc.

§ 196.37-1 Application.

(a) It is the intent of this subpart to shall apply to all vessels.

§ 196.37-3 General.

(a) It is the intent of this subpart to provide such markings as are necessary for the guidance of the persons on board in case of an emergency. In any specific case, and particularly on small vessels, where it can be shown to the satisfaction of the Officer in Charge, Marine Inspection, that the prescribed markings are unnecessary for the guidance of the persons on board in case of emergency, such markings may be modified or omitted.

(b) In addition to English, notices, directional signs, etc., shall be printed in languages appropriate to the service of the vessel.

(c) Where in this subpart red letters are specified, letters of a contrasting color on a red background will be accepted.

§ 196.37-5 General alarm bell contact makers.

(a) Each general alarm contact maker must be marked in accordance with requirements in Subchapter J (Electrical Engineering Regulations) of this chapter.

[CGD 74-125a, 47 FR 15279, Apr. 8, 1982]

REFERENCE: See also § 113.25-20 of Chapter J (Electrical Engineering) of the Code.

17 General alarm bells.

All general alarm bells shall be marked by red lettering at least ½ inch high: "GENERAL ALARM—BELL RINGS GO TO YOUR STATION."

19 Carbon dioxide alarm.

All carbon dioxide alarms shall be conspicuously identified: "WHEN THESE SOUNDS—VACATE AT ONCE—CARBON DIOXIDE BEING USED."

10 Fire extinguishing system branch lines.

The branch line valves of all fire extinguishing systems shall be plainly and permanently marked indicating the system served.

13 Fire extinguishing system control.

The control cabinets or spaces containing valves or manifolds for the fire extinguishing systems shall be distinctly marked in conspicuous letters at least 2 inches high: "CARBON DIOXIDE FIRE APPARATUS" or "FOAM FIRE APPARATUS", as the case may be.

15 Firehose stations.

Each fire hydrant shall be identified by letters and figures at least 2 inches high "FIRE STATION NO. 1", "2", etc. Where the hose is not visible in the open or behind glass so that it can be readily seen, this identification shall be so placed as to be readily visible from a distance.

20 Self-contained breathing apparatus and gas masks.

Cockers or spaces containing self-contained breathing apparatus shall be plainly marked "SELF-CONTAINED BREATHING APPARATUS".

23 Hand portable fire extinguishers.

Each hand portable fire extinguisher shall be marked with a number and the location where stowed. The number shall be marked with a corresponding

number at least ½ inch high. Where only one type and size of hand portable fire extinguisher is carried, the numbering may be omitted.

§ 196.37-25 Emergency lights.

(a) All emergency lights shall be marked with a letter "E" at least ½ inch high.

§ 196.37-33 Instructions for changing steering gear.

(a) Instructions in at least ½ inch letters and figures shall be posted in the steering engine room, relating in order, the different steps to be taken in changing to the emergency steering gear. Each clutch, gear, wheel, lever, valve, or switch which is used during the changeover shall be numbered or lettered on a metal plate or painted so that the markings can be recognized at a reasonable distance. The instructions shall indicate each clutch or pin to be "in" or "out" and each valve or switch which is to be "opened" or "closed" in shifting to any means of steering for which the vessel is equipped. Instructions shall be included to line up all steering wheels and rudder amidship before changing gears.

§ 196.37-35 Rudder orders.

(a) At all steering stations, there shall be installed a suitable notice on the wheel or device or in such other position as to be directly in the helmsman's line of vision, to indicate the direction in which the wheel or device must be turned for "right rudder" and for "left rudder".

§ 196.37-37 Lifeboats.

(a) The name of the vessel shall be plainly marked or painted on each side of the bow of each lifeboat in letters not less than 3 inches high. For vessels on an international voyage, the vessel's port of registry shall be added in similar type letters.

(b) The number of each lifeboat shall be plainly marked or painted on each side of the bow of each lifeboat in figures not less than 3 inches high. The lifeboats on each side of the vessel shall be numbered from forward

§ 196.37-40

aft, with the odd numbers on the starboard side.

(c) The cubical contents and number of persons allowed to be carried in each lifeboat shall be plainly marked or painted on each side of the bow of each lifeboat in letters and numbers not less than 1½ inches high. In addition, the number of persons allowed shall be plainly marked or painted on top of at least two thwarts in letters and numbers not less than 3 inches high.

(d) All oars shall be conspicuously marked with the vessel's name.

(e) Where mechanical disengaging apparatus is used, the control effecting the release of the lifeboat shall be painted bright red and shall have thereon in raised letters either the words—"DANGER—LEVER DROPS BOAT" or the words—"DANGER—LEVER RELEASES HOOKS".

(f) The top of thwarts, side benches, and footings of lifeboats shall be painted or otherwise colored international orange. The area in way of the red mechanical disengaging gear control lever, from the keel to the side bench, shall be painted or otherwise colored white, to provide a contrasting background for the lever. This band of white should be approximately 12 inches wide depending on the internal arrangement of the lifeboat.

§ 196.37-40 Liferrafts, lifefloats, and buoyant apparatus.

(a) Rigid type liferafts, lifefloats, and buoyant apparatus, together with their oars and paddles, shall be conspicuously marked with the vessel's name. For vessels on an international voyage, the vessel's port of registry also shall be similarly marked on lifefloats and buoyant apparatus.

(b) The number of persons allowed on each rigid type liferaft, lifefloat, and buoyant apparatus shall be conspicuously marked or painted thereon in letters and numbers at least 1½ inches high.

(c) There shall be stenciled in a conspicuous place in the immediate vicinity of each inflatable liferaft the following.

46 CFR Ch. I (10-1-90 Edition)

INFLATABLE LIFERAFT

NO. PERSONS CAPACITY

These markings shall not be placed on the inflatable liferaft containers.

§ 196.37-43 Life preservers, exposure suits, wood floats, and ring life buoys.

(a) Each life preserver, exposure suit, wood float, and ring life buoy must be marked with the vessel's name.

(b) For vessels on an international voyage, the vessel's port of registry shall be added in similar type letters on all ring life buoys.

[CGFR 67-83, 33 FR 1158, Jan. 27, 1968, as amended by CGD 76-033a, 45 FR 24487, Apr. 10, 1980]

§ 196.37-45 Firehose and axes.

(a) All firehose and axes shall be marked with the vessel's name.

§ 196.37-47 Portable magazine chests.

(a) Portable magazine chests shall be marked in letters at least 3 inches high:

PORTABLE MAGAZINE CHEST

— FLAMMABLE —

KEEP LIGHTS AND FIRE AWAY.

§ 196.37-49 Emergency position indicating radiobeacon (EPIRB).

The EPIRB required in § 192.65-1 of this subchapter must be marked with the vessel's name.

[CGD 73-24R, 39 FR 10140, Mar. 18, 1974]

Subpart 196.39—Posting Placards of Instructions for Launching and Inflating Inflatable Liferrafts

§ 196.39-1 When required.

(a) Every vessel equipped with inflatable liferafts shall have posted in conspicuous places which are regularly accessible to the crew and/or scientific personnel, approved placards containing instructions for launching and inflating inflatable liferafts for the information of persons on board. The number and location of such placards shall be as determined necessary by

Guard, DOT

§ 196.50-1

Officer in Charge, Marine Inspection

Under the requirements contained in § 160.051-6(c)(1) of Subpart 1 in Subchapter Q (Specifications) of this chapter, the manufacturer of approved inflatable liferafts is required to provide approved placards containing such instructions with each raft.

Subpart 196.40—Markings on Vessels

196.40-1 Application.

The provisions of this subpart apply to all vessels except as specifically noted.

196.40-5 Hull markings.

Vessels shall be marked as required by §§ 67 and 69 of this chapter.

72-104R, 37 FR 14233, July 18, 1972; 18537, Sept. 13, 1972]

196.40-10 Draft marks.

All documented vessels and all undocumented vessels shall have the draft of the vessel plainly and legibly marked upon the stem and upon the transom or rudderpost or at any other location at the stern of the vessel as may be necessary for easy observance. The draft shall be taken from the bottom of the keel at the marks to the surface of the water, the bottom of the mark indicating the draft in feet.

In cases where the keel does not extend forward or aft to the location of the draft marks, due to raked stem, transom, or away skeg, the datum line from which the draft shall be taken shall be indicated by projecting the line of the transom of keel forward, or aft, as the case may be, to the location of the draft marks.

In cases where a vessel may have a transom or other appendage extending below the line of the keel, the draft at the end of the vessel adjacent to the appendage shall be measured from a line tangent to the lowest part of the appendage and parallel to the line of the bottom of the keel.

196.40-15 Load line marks.

Vessels assigned a load line shall have the deck line and the load line permanently marked or em-

bossed as required by Subchapter E (Load Lines) of this chapter.

Subpart 196.43—Placard of Lifesaving Signals and Breeches Buoy Instructions

§ 196.43-1 Application.

(a) The provisions of this subpart shall apply to all manned vessels certificated for ocean, coastwise, or Great Lakes service.

§ 196.43-5 Availability.

(a) On all vessels to which this subpart applies there shall be readily available to the deck officer of the watch a placard (Form CG-811) containing instructions for the use of breeches buoys and the lifesaving signals as set forth in Regulation 16, Chapter V, of the International Convention for Safety of Life at Sea, 1974. These signals shall be used by vessels or persons in distress when communicating with lifesaving stations and maritime rescue units.

[CGFR 67-83, 33 FR 1158, Jan. 27, 1968, as amended by CGD 87-031a, 53 FR 27688, July 22, 1988]

Subpart 196.45—Carrying of Excess Steam

§ 196.45-1 Master and chief engineer responsible.

(a) It shall be the duty of the master and the engineer in charge of the boilers of any vessel to require that a steam pressure is not carried in excess of that allowed by the certificate of inspection and to require that the safety valves, once set and sealed by the inspector, are in no way tampered with or made inoperative except as provided in § 196.30-20.

Subpart 196.50—Compliance With Provisions of Certificate of Inspection

§ 196.50-1 Master or person in charge responsible.

(a) It shall be the duty of the master or other person in charge of the vessel to see that all of the provisions of the certificate of inspection are strictly ad-

§ 196.53-1

hered to. Nothing in this subpart shall be construed as limiting the master or other person in charge of the vessel, at his own responsibility, from diverting from the route prescribed in the certificate of inspection or taking such other steps as he deems necessary and prudent to assist vessels in distress or for other similar emergencies.

Subpart 196.53—Exhibition of License

§ 196.53-1 Licensed officers.

(a) All licensed officers on a vessel shall have their licenses conspicuously displayed as required by R.S. 4446 (46 U.S.C. 232).

Subpart 196.60—Motion Picture Film and Equipment

§ 196.60-1 Type required.

(a) Only acetate or slow-burning film may be used. Nitrocellulose film is specifically prohibited.

(b) Projectors shall be of an approved type.

Subpart 196.75—Prevention of Oil Pollution

§ 196.75-1 General requirements.

An oceanographic research vessel must be operated to meet the requirements in—

(a) Section 311 of the Federal Water Pollution Control Act, as amended (86 Stat. 816; 33 U.S.C. 1321);

(b) Section 12 of the Oil Pollution Act, 1961, as amended (75 Stat. 404; 33 U.S.C. 1011); and

(c) 33 CFR Parts 151, 155, and 156.

[CGD 73-58R, 39 FR 18768, May 30, 1974]

Subpart 196.80—Explosive Handling Plan

§ 196.80-1 Master's responsibility.

(a) It shall be the responsibility of the master to have prepared, signed, and prominently posted in conspicuous locations, operating procedures, plans, and safety precautions for all operations involving the use of explosives.

(b) The operating procedures referred to in paragraph (a) of this sec-

46 CFR Ch. I (10-1-90 Edition)

tion shall include and set forth the special duties and stations of appropriate qualified persons for various operations involving the use of explosives. Assignment of such persons shall be commensurate with their experience and training.

(c) A copy of the operating procedures, plans and safety precautions required by paragraph (a) of this section and all subsequent changes or revisions shall be forwarded to the Officer in Charge, Marine Inspection, issuing the certificate of inspection for review.

Subpart 196.85—Magazine Control

§ 196.85-1 Magazine operation and control.

(a) Keys to magazine spaces and magazine chests shall be kept in the sole control or custody of the Master or one delegated qualified person at all times. Test fittings for magazine sprinkler systems shall be kept in a locked cabinet under the custody of the Master.

(b) Whenever explosives are stored in magazines and magazine chests they shall be inspected daily. Magazine inspection results and corrective action, when taken, shall be noted in the ship's log daily. Maximum and minimum temperatures for the previous 24-hour period shall be recorded in the ship's log along with general magazine condition and corrective action taken when necessary.

(c) The magazine sprinkler controls shall be tested monthly. Test results and all corrective actions taken shall be recorded in the ship's log.

(d) The Master shall limit access to the magazines, or the contents thereof, to persons who can document 3 months on board ship training in the use of explosives. This shall not be construed as prohibiting access to the Master or others designated by the Master.

Subpart 196.90—Exposure Suits

SOURCE: CGD 76-033a, 45 FR 24487, Apr. 10, 1980, unless otherwise noted.

196.95-1 Applicability.

This subpart applies to each vessel required to carry an exposure suit under Subpart 192.41 of this chapter.

[D 82-075a, 49 FR 4488, Feb. 7, 1984]

196.95-5 Stowage of exposure suits.

The master of a vessel shall ensure

(1) Each exposure suit required by 192.41-5(a) is stowed in a readily accessible location in or near the berth area of the person for whom the exposure suit is provided; and

(2) Each exposure suit required by 192.41-5(b) for a watch or work station is stowed in a readily accessible location in or near the station.

196.95-10 Child size exposure suits required.

The master of a vessel shall ensure that children, when carried are provided with child size exposure suits.

Subpart 196.95—Pilot Boarding Operations

196.95-1 Pilot boarding operations.

(1) The master shall ensure that pilot boarding equipment is maintained as follows:

(2) The equipment must be kept clean and in good working order.

(3) Each damaged step or spreader on a pilot ladder must be replaced

in kind with an approved replacement step or spreader step, prior to further use of the ladder. The replacement step or spreader step must be secured by the method used in the original construction of the ladder, and in accordance with manufacturer instructions.

(b) The master shall ensure compliance with the following during pilot boarding operations:

(1) Only approved pilot boarding equipment may be used.

(2) The pilot boarding equipment must rest firmly against the hull of the vessel and be clear of overboard discharges.

(3) Two man ropes, a safety line and an approved lifebuoy with an approved water light must be at the point of access and be immediately available for use during boarding operations.

(4) Rigging of the equipment and embarkation/debarkation of a pilot must be supervised in person by a deck officer.

(5) Both the equipment over the side and the point of access must be adequately lit during the night operations.

(6) If a pilot hoist is used, a pilot ladder must be kept on deck adjacent to the hoist and available for immediate use.

[CGD 79-032, 49 FR 25455, June 21, 1984]

SUBCHAPTER V—MARINE OCCUPATIONAL SAFETY AND HEALTH STANDARDS

PART 197—GENERAL PROVISIONS

Subpart A—[Reserved]

Subpart B—Commercial Diving Operations

GENERAL

- Sec.
- 197.200 Purpose of subpart.
 - 197.202 Applicability.
 - 197.203 Right of appeal.
 - 197.204 Definitions.
 - 197.205 Availability of standards.
 - 197.206 Substitutes for required equipment, materials, apparatus, arrangements, procedures, or tests.
 - 197.208 Designation of person-in-charge.
 - 197.210 Designation of diving supervisor.

EQUIPMENT

- 197.300 Applicability.
- 197.310 Air compressor system.
- 197.312 Breathing supply hoses.
- 197.314 First aid and treatment equipment.
- 197.318 Gages and timekeeping devices.
- 197.320 Diving ladder and stage.
- 197.322 Surface-supplied helmets and masks.
- 197.324 Diver's safety harness.
- 197.326 Oxygen safety.
- 197.328 PVHO—General.
- 197.330 PVHO—Closed bells.
- 197.332 PVHO—Decompression chambers.
- 197.334 Open diving bells.
- 197.336 Pressure piping.
- 197.338 Compressed gas cylinders.
- 197.340 Breathing gas supply.
- 197.342 Buoyancy-changing devices.
- 197.344 Inflatable flotation devices.
- 197.346 Diver's equipment.

OPERATIONS

- 197.400 Applicability.
- 197.402 Responsibilities of the person-in-charge.
- 197.404 Responsibilities of the diving supervisor.
- 197.410 Dive procedures.
- 197.420 Operations manual.

SPECIFIC DIVING MODE PROCEDURES

- 197.430 SCUBA diving.
- 197.432 Surface-supplied air diving.
- 197.434 Surface-supplied mixed gas diving.
- 197.436 Liveboating.

PERIODIC TESTS AND INSPECTIONS OF DIVING EQUIPMENT

- 197.450 Breathing gas tests.

- 197.452 Oxygen cleaning.
- 197.454 First aid and treatment equipment.
- 197.456 Breathing supply hoses.
- 197.458 Gages and timekeeping devices.
- 197.460 Diving equipment.
- 197.462 Pressure vessels and pressure piping.

RECORDS

- 197.480 Logbooks.
- 197.482 Logbook entries.
- 197.484 Notice of casualty.
- 197.486 Written report of casualty.
- 197.488 Retention of records after casualty.

APPENDIX A—AIR NO-DECOMPRESSION LIMITS

AUTHORITY: 33 U.S.C. 1509; 43 U.S.C. 1333; 46 U.S.C. 3306, 3703, 6101; 49 CFR 1.46.

SOURCE: CGD 76-009, 43 FR 53683, Nov. 16, 1978, unless otherwise noted.

Subpart A—[Reserved]

Subpart B—Commercial Diving Operations

GENERAL

§ 197.200 Purpose of subpart.

This subpart prescribes rules for the design, construction, and use of equipment, and inspection, operation, and safety and health standards for commercial diving operations taking place from vessels and facilities under Coast Guard jurisdiction.

§ 197.202 Applicability.

(a) This subpart applies to commercial diving operations taking place at any deepwater port or the safety zone thereof as defined in 33 CFR 150; from any artificial island, installation, or other device on the Outer Continental Shelf and the waters adjacent thereto as defined in 33 CFR 147 or otherwise related to activities on the Outer Continental Shelf; and from all vessels required to have a certificate of inspection issued by the Coast Guard including mobile offshore drilling units regardless of their geographic location, or from any vessel connected with a deepwater port or within the deepwater port safety zone, or from any

el engaged in activities related to Outer Continental Shelf; except this subpart does not apply to diving operation—

Performed solely for marine scientific research and development purposes by educational institutions;

Performed solely for research development for the advancement of diving equipment and technology;

Performed solely for search and rescue or related public safety purposes by or under the control of a governmental agency.

Diving operations may deviate from the requirements of this subpart to the extent necessary to prevent or minimize a situation which is likely to result in death, injury, or major environmental damage. The circumstances leading to the situation, the deviations, and the corrective action taken, if appropriate, to reduce the possibility of recurrence shall be recorded by the diving supervisor in the logbook as required by § 197.482(c).

203 Right of appeal.

Any person directly affected by a decision or action taken under this subpart, by or on behalf of the Coast Guard, may appeal therefrom in accordance with subpart 1.03 of this title.

88-033, 54 FR 50382, Dec. 6, 1989]

204 Definitions.

used in this subpart:

CFM means actual cubic feet per minute.

NSI Code I means the B31.1 American National Standards Institute "Code for Pressure Piping, Power piping."

SME Code means the American Society of Mechanical Engineers Boiler and Pressure Vessel Code.

SME PVHO-1 means the ANSI/ASME standard "Safety Standard for Pressure Vessels for Human Occupan-

TA means a measure of pressure expressed in terms of atmosphere absolute (includes barometric pressure).

Bell means a compartment either open to ambient pressure (open bell) or pressurized (closed bell) that allows a diver to be transported to and

from the underwater work site, allows the diver access to the surrounding environment, and is capable of being used as a refuge during diving operations.

"Bottom time" means the total elapsed time measured in minutes from the time the diver leaves the surface in descent to the time to the next whole minute that the diver begins ascent.

"Breathing gas/breathing mixture" means the mixed-gas, oxygen, or air as appropriate supplied to the diver for breathing.

"Bursting pressure" means the pressure at which a pressure containment device would fail structurally.

"Commercial diver" means a diver engaged in underwater work for hire excluding sport and recreational diving and the instruction thereof.

"Commercial diving operation" means all activities in support of a commercial diver.

"Cylinder" means a pressure vessel for the storage of gases under pressure.

"Decompression chamber" means a pressure vessel for human occupancy such as a surface decompression chamber, closed bell, or deep diving system especially equipped to recompress, decompress, and treat divers.

"Decompression sickness" means a condition caused by the formation of gas or gas bubbles in the blood or body tissue as a result of pressure reduction.

"Decompression table" means a profile or set of profiles of ascent rates and breathing mixtures designed to reduce the pressure on a diver safely to atmospheric pressure after the diver has been exposed to a specific depth and bottom time.

"Depth" means the maximum pressure expressed in feet of seawater attained by a diver and is used to express the depth of a dive.

"Dive location" means that portion of a vessel or facility from which a diving operation is conducted.

"Dive team" means the divers and diver support personnel involved in a diving operation, including the diving supervisor.

"Diver" means a person working beneath the surface, exposed to hyper-

baric conditions, and using underwater breathing apparatus.

"Diver-carried reserve breathing gas" means a supply of air or mixed-gas, as appropriate, carried by the diver in addition to the primary or secondary breathing gas supplied to the diver.

"Diving installation" means all of the equipment used in support of a commercial diving operation.

"Diving mode" means a type of diving requiring SCUBA, surface-supplied air, or surface-supplied mixed-gas equipment, with related procedures and techniques.

"Diving stage" means a suspended platform constructed to carry one or more divers and used for putting divers into the water and bringing them to the surface when in-water decompression or a heavy-weight diving outfit is used.

"Diving supervisor" means the person having complete responsibility for the safety of a commercial diving operation including the responsibility for the safety and health of all diving personnel in accordance with this subpart.

"Facility" means a deepwater port, or an artificial island, installation, or other device on the Outer Continental Shelf subject to Coast Guard jurisdiction.

"Fsw" means feet of seawater (or equivalent static pressure head).

"Gas embolism" means a condition caused by expanding gases, which have been taken into and retained in the lungs while breathing under pressure, being forced into the bloodstream or other tissues during ascent or decompression.

"Heavy-weight diving outfit" means diver-worn surface-supplied deep-sea dress.

"Hyperbaric conditions" means pressure conditions in excess of surface atmospheric pressure.

"Injurious corrosion" means an advanced state of corrosion which may impair the structural integrity or safe operation of the equipment.

"Liveboating" means the support of a surfaced-supplied diver from a vessel underway.

"Maximum working pressure" means the maximum pressure to which a

pressure containment device can be exposed under operating conditions (usually the pressure setting of the pressure relief device).

"No-decompression limits" means the air depth and bottom time limits of appendix A.

"Pressure vessel" means a container capable of withstanding an internal maximum working pressure over 15 psig.

"Psi(g)" means pounds per square inch (gauge).

"PVHO" means pressure vessel for human occupancy but does not include pressure vessels for human occupancy that may be subjected to external pressures in excess of 15 psig but can only be subjected to maximum internal pressures of 15 psig or less (i.e., submersibles, or one atmosphere observation bells).

"Saturation diving" means saturating a diver's tissues with the inert gas in the breathing mixture to allow an extension of bottom time without additional decompression.

"SCUBA diving" means a diving mode in which the diver is supplied with a compressed breathing mixture from diver-carried equipment.

"Standby diver" means a diver at the dive location available to assist the diver in the water.

"Surface-supplied air diving" means a diving mode in which the diver is supplied from the dive location or bell with compressed breathing air including oxygen or oxygen enriched air supplied for treatment.

"Surface-supplied mixed-gas diving" means a diving mode in which the diver is supplied from the dive location or bell with a compressed breathing mixture other than air.

"Timekeeping device" means a device for measuring the time of a dive in minutes.

"Treatment table" means a depth, time, and breathing gas profile designed to treat a diver for decompression sickness.

"Umbilical" means the hose bundle between a dive location and a diver or bell, or between a diver and a bell that supplies the diver or bell with life-line, breathing gas, communications, power, and heat as appropriate to the diving mode or conditions.

"Vessel" means any waterborne craft including mobile offshore drilling units required to have a Certificate of Inspection issued by the Coast Guard for any waterborne craft connected with a deepwater port or within the deepwater port safety zone, or any waterborne craft engaged in activities related to the Outer Continental Shelf.

"Volume tank" means a pressure vessel connected to the outlet of a compressor and used as an air reservoir.

"Working pressure" means the pressure to which a pressure containment device is exposed at any particular instant during normal operating conditions.

§ 197.205 Availability of standards.

(a) Several standards have been incorporated by reference in this subchapter. The incorporation by reference has been approved by the Director of the FEDERAL REGISTER under the provisions of 1 CFR Part 51.

(b) The standards are available from the appropriate organizations whose addresses are listed below:

(1) American National Standards Institute, 1430 Broadway, New York, NY 10018.

(2) American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, NY 10017.

§ 197.206 Substitutes for required equipment, materials, apparatus, arrangements, procedures, or tests.

(a) The Coast Guard may accept substitutes for equipment, materials, apparatus, arrangements, procedures, or tests required in this subpart if the substitute provides an equivalent level of safety.

(b) In any case where it is shown to the satisfaction of the Commandant that the use of any particular equipment, material, apparatus, arrangement, procedure, or test is unreasonable or impracticable, the Commandant may permit the use of alternate equipment, material, apparatus, arrangement, procedure, or test to such an extent and upon such condition as will insure, to his satisfaction, a degree of safety consistent with the minimum standards set forth in this subpart.

§ 197.208 Designation of person-in-charge.

(a) The owner or agent of a vessel or facility without a designated master shall designate, in writing, an individual to be the person-in-charge of the vessel or facility.

(b) Where a master is designated, the master is the person-in-charge.

§ 197.210 Designation of diving supervisor.

The name of the diving supervisor for each commercial diving operation shall be—

(a) Designated in writing; and

(b) Given to the person-in-charge prior to the commencement of any commercial diving operation.

EQUIPMENT

§ 197.300 Applicability.

(a) Each diving installation used on each vessel or facility subject to this subpart must meet the requirements of this subpart.

(b) In addition to the requirements of this subpart, equipment which is permanently installed on vessels and is part of the diving installation must meet Subchapters F and J of this chapter.

(c) All repairs and modifications to pressure vessels used for commercial diving operations must be made in accordance with the requirements of section VIII, division 1 or division 2 of the ASME Code, ASME PVHO-1, part 54 of this chapter, or 49 CFR 173.34, as applicable.

(d) All repairs and modifications to pressure piping used for commercial diving operations must be made in accordance with the requirements of the ANSI Code or Part 56 of this chapter, as applicable.

§ 197.310 Air compressor system.

A compressor used to supply breathing air to a diver must have—

(a) A volume tank that is—

(1) Built and stamped in accordance with section VIII, division 1 of the ASME Code with—

(i) A check valve on the inlet side;

(ii) A pressure gage;

(iii) A relief valve; and

(iv) A drain valve; and

§ 197.312

(2) Tested after every repair, modification, or alteration to the pressure boundaries as required by § 197.462;

(b) Intakes that are located away from areas containing exhaust fumes of internal combustion engines or other hazardous contaminants;

(c) An efficient filtration system; and

(d) Slow-opening shut-off valves when the maximum allowable working pressure of the system exceeds 500 psig.

§ 197.312 Breathing supply hoses.

(a) Each breathing supply hose must—

(1) Have a maximum working pressure that is equal to or exceeds—

(i) The maximum working pressure of the section of the breathing supply system in which used; and

(ii) The pressure equivalent of the maximum depth of the dive relative to the supply source plus 100 psig;

(2) Have a bursting pressure of four times its maximum working pressure;

(3) Have connectors that—

(i) Are made of corrosion-resistant material;

(ii) Are resistant to accidental disengagement; and

(iii) Have a maximum working pressure that is at least equal to the maximum working pressure of the hose to which they are attached; and

(4) Resist kinking by—

(i) Being made of kink-resistant materials; or

(ii) Having exterior support.

(b) Each umbilical must—

(1) Meet the requirements of paragraph (a) of this section; and

(2) Be marked from the diver or open bell end in 10-foot intervals to 100 feet and in 50-foot intervals thereafter.

§ 197.314 First aid and treatment equipment.

(a) Each dive location must have—

(1) A medical kit approved by a physician that consists of—

(i) Basic first aid supplies; and

(ii) Any additional supplies necessary to treat minor trauma and illnesses resulting from hyperbaric exposure;

(2) A copy of an American Red Cross Standard First Aid handbook;

46 CFR Ch. I (10-1-90 Edition)

(3) A bag-type manual resuscitator with transparent mask and tubing; and

(4) A capability to remove an injured diver from the water.

(b) Each diving installation must have a two-way communication system to obtain emergency assistance except when the vessel or facility ship-to-shore, two-way communication system is readily available.

(c) Each dive location supporting mixed-gas dives, dives deeper than 130 fsw, or dives outside the no-decompression limits must meet the requirements of paragraph (a) of this section and have—

(1) A decompression chamber;

(2) Decompression and treatment tables;

(3) A supply of breathing gases sufficient to treat for decompression sickness;

(4) The medical kit required by paragraph (a)(1) of this section that is—

(i) Capable of being carried into the decompression chamber; and

(ii) Suitable for use under hyperbaric conditions; and

(5) A capability to assist an injured diver into the decompression chamber.

§ 197.318 Gages and timekeeping devices.

(a) A gage indicating diver depth must be at each dive location for surface-supplied dives.

(b) A timekeeping device must be at each dive location.

§ 197.320 Diving ladder and stage.

(a) Each diving ladder must—

(1) Be capable of supporting the weight of at least two divers;

(2) Extend 3 feet below the water surface;

(3) Be firmly in place;

(4) Be available at the dive location for a diver to enter or exit the water unless a diving stage or bell is provided; and

(5) Be—(i) Made of corrosion-resistant material; or

(ii) Protected against and maintained free from injurious corrosion.

(b) Each diving stage must—

(1) Be capable of supporting the weight of at least two divers;

(2) Have an open-grating platform;

Be available for a diver to enter the water from the dive location and for in-water decompression if needed.

Wearing a heavy-weight diving mask or
Diving outside the no-decompression limits, except when a bell is provided.

Be—(i) Made of corrosion-resistant material; or
Protected against and maintained free from injurious corrosion.

22 Surface-supplied helmets and masks.

Each surface-supplied helmet or mask must have—

A nonreturn valve at the attachment point between helmet or mask and umbilical that closes readily and reliably;

An exhaust valve; and

A two-way voice communication system between the diver and the dive supervisor or bell.

Each surface-supplied air helmet mask must—

Ventilate at least 4.5 ACFM at depth at which it is operated; or

Be able to maintain the diver's inspired carbon dioxide partial pressure below 0.02 ATA when the diver is exercising carbon dioxide at the rate of standard liters per minute.

24 Diver's safety harness.

Each safety harness used in surface-supplied diving must have—

A positive buckling device; and

An attachment point for the umbilical life line that—

Distributes the pulling force of the umbilical over the diver's body;

Prevents strain on the mask or helmet.

326 Oxygen safety.

Equipment used with oxygen or oxygen mixtures greater than 40 percent by volume must be designed for use.

Oxygen systems with pressures greater than 125 psig must have slow-closing shut-off valves except pressure boundary shut-off valves may be fast-closing valves.

§ 197.328 PVHO—General.

(a) Each PVHO, contracted for or purchased after February 1, 1979, must be built and stamped in accordance with ASME PVHO-1.

(b) Each PVHO, contracted for or constructed before February 1, 1979, and not Coast Guard approved, must be submitted to the Coast Guard for approval prior to February 1, 1984.

(c) To be approved under paragraph (b), a PVHO must be—

(1) Constructed in accordance with Part 54 of this chapter; or—

(2) Be built in accordance with section VIII, division 1 or division 2 of the ASME Code; and—

(i) Have the plans approved in accordance with § 54.01-18 of this chapter;

(ii) Pass the radiographic and other survey tests of welded joints required by section VIII, division 1 or division 2, as appropriate, of the ASME Code; and

(iii) Pass—(A) The hydrostatic test described in § 54.10-10 of this chapter; or

(B) The pneumatic test described in § 54.10-15 of this chapter and such additional tests as the Officer-in-Charge, Marine Inspection (OCMI) may require.

(d) Each PVHO must—

(1) Have a shut-off valve located within 1 foot of the pressure boundary on all piping penetrating the pressure boundary;

(2) Have a check valve located within 1 foot of the pressure boundary on all piping exclusively carrying fluids into the PVHO;

(3) Have the pressure relief device required by ASME PVHO-1;

(4) Have a built-in breathing system with at least one mask per occupant stored inside each separately pressurized compartment;

(5) Have a two-way voice communications system allowing communications between an occupant in one pressurized compartment of the PVHO and—

(i) The diving supervisor at the dive location;

(ii) Any divers being supported from the same PVHO; and

§ 197.330

(iii) Occupants of other separately pressurized compartments of the same PVHO;

(6) If designed to mechanically couple to another PVHO, have a two-way communications system allowing communications between occupants of each PVHO when mechanically coupled;

(7) Have a pressure gage in the interior of each compartment that is—

(i) Designed for human occupancy; and

(ii) Capable of having the compartment pressure controlled from inside the PVHO;

(8) Have viewports that allow observation of occupants from the outside;

(9) Have viewports that meet the requirements of ASME PVHO-1 except those PVHO's approved under paragraph (b) of this section which have nonacrylic viewports;

(10) Have means of illumination sufficient to allow an occupant to—

(i) Read gages; and

(ii) Operate the installed systems within each compartment;

(11) Be designed and equipped to minimize sources of combustible materials and ignition;

(12) Have a protective device on the inlet side of PVHO exhaust lines;

(13) Have a means of extinguishing a fire in the interior;

(14) Have a means of maintaining the oxygen content of the interior atmosphere below 25 percent surface equivalent by volume when pressurized with air as the breathing mixture;

(15) Have a means of maintaining the interior atmosphere below 2 percent surface equivalent carbon dioxide by volume;

(16) Have a means of overriding and controlling from the exterior all interior breathing and pressure supply controls;

(17) Have a speech unscrambler when used with mixed-gas;

(18) Have interior electrical systems that are designed for the environment in which they will operate to minimize the risk of fire, electrical shock to personnel, and galvanic action of the PVHO; and

(19) Be tested after every repair, modification, or alteration to the pres-

46 CFR Ch. I (10-1-90 Edition)

sure boundaries as required by § 197.462.

§ 197.330 PVHO—Closed bells.

(a) Except as provided in paragraph (b) of this section, each closed bell must meet the requirements of § 197.328 and—

(1) Have underwater breathing apparatus for each occupant stored inside each separately pressurized compartment;

(2) Have an umbilical;

(3) Have lifting equipment attached to the closed bell capable of returning the occupied closed bell when fully flooded to the dive location;

(4) Be capable of recompressing on the surface to the maximum design diving depth;

(5) Be constructed and equipped as required by § 197.332;

(6) Have an emergency locating device designed to assist personnel on the surface in acquiring and maintaining contact with the submerged PVHO if the umbilical to the surface is severed;

(7) Have a capability to remove an injured diver from the water; and

(8) Have a life support capability for the intact closed bell and its occupants for—

(i) Twelve hours after an accident severing the umbilical to the surface when the umbilical to the surface is the only installed means of retrieving the closed bell; or

(ii) A period of time, at least equal to 1 hour plus twice the time required to retrieve the bell from its designed operating depth and attach an auxiliary lifesupport system, after an accident severing the umbilical to the surface when the umbilical is one of the two independent installed means of retrieving the closed bell, each meeting the requirements of paragraph (a)(3) of this section.

(b) A closed bell that does not meet the requirements of paragraphs (a)(3), (a)(4), and (a)(5) of this section, must be capable of attachment to another PVHO that—

(1) Allows the transfer of personnel and diver's equipment under pressure from the closed bell to the PVHO;

(m) Meets the requirements of paragraph (a)(3) of this section;
 (n) Is capable of attachment to a decompression chamber meeting the requirements of paragraphs (a)(4) and (5) of this section; and
 (o) Allows the transfer of personnel diver's equipment under pressure in the PVHO to the decompression chamber.

§ 197.332 PVHO—Decompression chambers.

Each decompression chamber must—
 (a) Meet the requirements of § 197.328;
 (b) Have internal dimensions sufficient to accommodate a diver lying in horizontal position and another person tending the diver;
 (c) Have a capability for ingress and egress of personnel and equipment while the occupants are under pressure;
 (d) Have a means of operating all internal man-way locking devices, except disabled shipping dogs, from the outside of a closed hatch;
 (e) Have interior illumination sufficient to allow visual observation, diagnosis, and medical treatment of an occupant;
 (f) Have one bunk for each two occupants;
 (g) Have a capability that allows occupants to be seen over their entire length from the exterior;
 (h) Have a minimum pressure capacity of—
 (1) 6 ATA, when used for diving to 330 fsw; or
 (2) The maximum depth of the dive, when used for diving operations deeper than 300 fsw, unless a closed decompression chamber meeting the requirements of § 197.330(a) (3), (4), and (5) is used;
 (i) Have a minimum pressurization rate of 2 ATA per minute to 60 fsw and at least 1 ATA per minute thereafter;
 (j) Have a decompression rate of 1 ATA per minute to 33 fsw;
 (k) Have an external pressure gage on each pressurized compartment;
 (l) Have a capability to supply breathing mixtures at the maximum flow rate required by each occupant doing surface work; and

(m) Have a sound-powered headset or telephone as a backup to the communications system required by § 197.328(c) (5) and (6), except when that communications system is a sound-powered system.

§ 197.334 Open diving bells.

Each open diving bell must—
 (a) Have an upper section that provides an envelope capable of maintaining a bubble of breathing mixture available to a diver standing on the lower section of the platform with his body through the open bottom and his head in the bubble;
 (b) Have lifting equipment capable of returning the occupied open bell to the dive location;
 (c) Have an umbilical; and
 (d) Be—
 (1) Made of corrosion-resistant material; or
 (2) Protected against and maintained free from injurious corrosion.

§ 197.336 Pressure piping.

Piping systems that are not an integral part of the vessel or facility, carrying fluids under pressures exceeding 15 psig must—
 (a) Meet the ANSI Code;
 (b) Have the point of connection to the integral piping system of the vessel or facility clearly marked; and
 (c) Be tested after every repair, modification, or alteration to the pressure boundaries as set forth in § 197.462.

§ 197.338 Compressed gas cylinders.

Each compressed gas cylinder must—
 (a) Be stored in a ventilated area;
 (b) Be protected from excessive heat;
 (c) Be prevented from falling;
 (d) Be tested after any repair, modification, or alteration to the pressure boundaries as set forth in § 197.462; and
 (e) Meet the requirements of—
 (1) Part 54 of this Chapter; or
 (2) 49 CFR 173.34 and 49 CFR 178 Subpart C.

§ 197.340 Breathing gas supply.

(a) A primary breathing gas supply for surface-supplied diving must be

sufficient to support the following for the duration of the planned dive:

- (1) The diver.
- (2) The standby diver.
- (3) The decompression chamber, when required by § 197.432(e)(2) or by § 197.434(a) for the duration of the dive and for one hour after completion of the planned dive.

(4) A decompression chamber when provided but not required by this subpart.

(5) A closed bell when provided or required by § 197.434(d).

(6) An open bell when provided or required by § 197.432(e)(4) or by § 197.434(c).

(b) A secondary breathing gas supply for surface-supplied diving must be sufficient to support the following:

(1) The diver while returning to the surface.

(2) The diver during decompression.

(3) The standby diver.

(4) The decompression chamber when required by § 197.432(e)(2) or by § 197.434(a) for the duration of the dive and one hour after the completion of the planned dive.

(5) The closed bell while returning the diver to the surface.

(6) The open bell while returning the diver to the surface.

(c) A diver-carried reserve breathing gas supply for surface-supplied diving must be sufficient to allow the diver to—

(1) Reach the surface.

(2) Reach another source of breathing gas; or

(3) Be reached by a standby diver equipped with another source of breathing gas for the diver.

(d) A primary breathing gas supply for SCUBA diving must be sufficient to support the diver for the duration of the planned dive through his return to the dive location or planned pick-up point.

(e) A diver-carried reserve breathing gas supply for SCUBA diving must be sufficient to allow the diver to return to the dive location or planned pick-up point from the greatest depth of the planned dive.

(f) Oxygen used for breathing mixtures must—

(1) Meet the requirements of Federal Specification BB-0-925a; and

(2) Be type 1 (gaseous) grade A or B.

(g) Nitrogen used for breathing mixtures must—

(1) Meet the requirements of Federal Specification BB-N-411c;

(2) Be type 1 (gaseous);

(3) Be class 1 (oil free); and

(4) Be grade A, B, or C.

(h) Helium used for breathing mixtures must be grades A, B, or C produced by the Federal Government, or equivalent.

(i) Compressed air used for breathing mixtures must—

(1) Be 20 to 22 percent oxygen by volume;

(2) Have no objectionable odor; and

(3) Have no more than—

(i) 1,000 parts per million of carbon dioxide;

(ii) 20 parts per million carbon monoxide;

(iii) 5 milligrams per cubic meter of solid and liquid particulates including oil; and

(iv) 25 parts per million of hydrocarbons (includes methane and all other hydrocarbons expressed as methane).

§ 197.342 Buoyancy-changing devices.

(a) A dry suit or other buoyancy-changing device not directly connected to the exhaust valve of the helmet or mask must have an independent exhaust valve.

(b) When used for SCUBA diving, a buoyancy-changing device must have an inflation source separate from the breathing gas supply.

§ 197.344 Inflatable floatation devices.

An inflatable floatation device for SCUBA diving must—

(a) Be capable of maintaining the diver at the surface in a faceup position;

(b) Have a manually activated inflation device;

(c) Have an oral inflation device;

(d) Have an over-pressure relief device; and

(e) Have a manually operated exhaust valve.

§ 197.402 Diver's equipment.

(a) Each diver using SCUBA must

1. Self-contained underwater breathing equipment including—

(1) A primary breathing gas supply with a cylinder pressure gage readable to the diver during the dive; and

(2) A diver-carried reserve breathing gas supply provided by—

(i) A manual reserve (J valve); or

(ii) An independent reserve cylinder attached and ready for use;

(3) A face mask;

(4) An inflatable floatation device;

(5) A weight belt capable of quick release;

(6) A knife;

(7) Swim fins or shoes;

(8) A diving wristwatch; and

(9) A depth gage.

(b) Each diver using a heavyweight diving outfit must—

(1) Have a helmet group consisting of helmet, breastplate, and associated hoses and connections;

(2) Have a diving dress group consisting of a basic dress that encloses the body (except for head and hands) with a tough, waterproof cover, gloves, and weight assembly; and knife;

(3) Have a hose group consisting of breathing gas hose and fittings, control valve, the lifeline, communications cable, and a pneumofathometer; and

(4) Be provided with a helmet cushion and weighted shoes.

(c) Each surface-supplied dive operation using a heavyweight diving outfit must have an extra breathing gas hose with attaching tools available to the standby diver.

(d) Each diver using a lightweight diving outfit must have—

(1) A safety harness;

(2) A weight assembly capable of quick release;

(3) A mask group consisting of a lightweight mask and associated hoses and connections;

(4) A diving dress group consisting of a dry diving dress, gloves, shoes, and knife; and

(5) A hose group consisting of the breathing gas hose and fittings, the control valve, the lifeline, communications cable, and a pneumofathometer.

(e) The breaking strength of the communications cable is at least equal to that required for the lifeline, the communications cable can serve as the lifeline).

(f) Each surface-supplied air dive operation within the no-decompression limits and to depths of 130 fsw or less must have a primary breathing gas supply at the dive location.

(g) Each surface-supplied dive operation outside the no-compression limits, deeper than 130 fsw, or using mixed-gas as a breathing mixture must have at the dive location—

(1) A primary breathing gas supply;

and

(2) A secondary breathing gas supply.

(h) Each diver diving outside the no-decompression limits, deeper than 130 fsw, or using mixed-gas must have a diver-carried reserve breathing gas supply except when using a heavyweight diving outfit or when diving in a physically confining area.

OPERATIONS

§ 197.400 Applicability.

Diving operations may only be conducted from a vessel or facility subject to the subpart if the regulations in this subpart are met.

§ 197.402 Responsibilities of the person-in-charge.

(a) The person-in-charge shall—

(1) Be fully cognizant of the provisions of this subpart;

(2) Prior to permitting any commercial diving operation to commence, have—

(i) The designation of the diving supervisor for each diving operation as required by § 197.210;

(ii) A report on—

(A) The nature and planned times of the planned diving operation; and

(B) The planned involvement of the vessel or facility, its equipment, and its personnel in the diving operation.

(b) Prior to permitting any commercial diving operation involving liveboating to commence, the person-in-charge shall insure that—

(1) A means of rapid communications with the diving supervisor while the diver is entering, in, or leaving the water is established; and

§ 197.404

46 CFR Ch. I (10-1-90 Edition)

(2) A boat and crew for diver pickup in the event of an emergency is provided.

(c) The person-in-charge shall insure that a boat and crew for SCUBA diver pickup is provided when SCUBA divers are not line-tended from the dive location.

(d) The person-in-charge shall coordinate the activities on and of the vessel or facility with the diving supervisor.

(e) The person-in-charge shall insure that the vessel or facility equipment and personnel are kept clear of the dive location except after coordinating with the diving supervisor.

§ 197.404 Responsibilities of the diving supervisor.

(a) The diving supervisor shall—

(1) Be fully cognizant of the provisions of this subpart;

(2) Be fully cognizant of the provisions of the operations manual required by § 197.420;

(3) Insure that diving operations conducted from a vessel or facility subject to this subpart meet the regulations in this subpart;

(4) Prior to the commencement of any commercial diving operation, provide the report required by § 197.402 to the person-in-charge;

(5) Coordinate with the person-in-charge any changes that are made to the report required by § 197.402; and

(6) Promptly notify the person-in-charge of any diving related casualty, accident, or injury.

(b) The diving supervisor is in charge of the planning and execution of the diving operation including the responsibility for the safety and health of the dive team.

§ 197.410 Dive procedures.

(a) The diving supervisor shall insure that—

(1) Before commencing diving operations, dive team members are briefed on—

(i) The tasks to be undertaken;

(ii) Any unusual hazards or environmental conditions likely to affect the safety of the diving operation; and

(iii) Any modifications to the operations manual or procedures including

safety procedures necessitated by the specific diving operation;

(2) The breathing gas supply systems, masks, helmets, thermal protection, when provided, and bell lifting equipment, when a bell is provided or required, are inspected prior to each diving operation;

(3) Each diver is instructed to report any physical problems or physiological effects including aches, pains, current illnesses, or symptoms of decompression sickness prior to each dive;

(4) A depth, bottom time profile, including any breathing mixture changes, is maintained at the dive location for each diver during the dive, except that SCUBA divers shall maintain their own profiles;

(5) A two-way voice communication system is used between—

(i) Each surface-supplied diver and a dive team member at the dive location or bell (when provided); and

(ii) The bell (when provided) and the dive location;

(6) A two-way communication system is available at the dive location to obtain emergency assistance;

(7) After the completion of each dive—

(i) The physical condition of the diver is checked by—

(A) Visual observation; and

(B) Questioning the diver about his physical well-being;

(ii) The diver is instructed to report any physical problems or adverse physiological effects including aches, pains, current illnesses, or symptoms of decompression sickness or gas embolism;

(iii) The diver is advised of the location of an operational decompression chamber; and

(iv) The diver is alerted to the potential hazards of flying after diving;

(8) For any dive outside the no-decompression limits, deeper than 130 fsw, or using mixed-gas as a breathing mixture—

(i) A depth, time, decompression profile including breathing mixture changes is maintained for each diver at the dive location;

(ii) The diver is instructed to remain awake and in the vicinity of the dive location decompression chamber for at least one hour after the completion of

a dive, decompression, or treatment; and

(iii) A dive team member, other than the diver, is trained and available to operate the decompression chamber; and

(9) When decompression sickness or gas embolism is suspected or symptoms are evident, a report is completed containing—

(i) The investigation for each incident including—

(A) The dive and decompression profiles;

(B) The composition, depth, and time of breathing mixture changes;

(C) A description of the symptoms including depth and time of onset; and

(D) A description and results of the treatment;

(ii) The evaluation for each incident based on—

(A) The investigation;

(B) Consideration of the past performance of the decompression table used; and

(C) Individual susceptibility; and

(iii) The corrective action taken, if necessary, to reduce the probability of recurrence.

(b) The diving supervisor shall ensure that the working interval of a dive is terminated when he so directs or when—

(1) A diver requests termination;

(2) A diver fails to respond correctly to communications or signals from a dive team member;

(3) Communications are lost and can not be quickly reestablished between—

(i) The diver and a dive team member at the dive location; or

(ii) The person-in-charge and the diving supervisor during liveboating operations; or

(4) A diver begins to use his diver-carried reserve breathing gas supply.

197.420 Operations manual.

(a) The diving supervisor shall—

(1) Provide an operations manual to the person-in-charge prior to commencement of any diving operation; and

(2) Make an operations manual available at the dive location to all members of the dive team.

(b) The operations manual must be modified in writing when adaptation is required because of—

(1) The configuration or operation of the vessel or facility; or

(2) The specific diving operation as planned.

(c) The operations manual must provide for the safety and health of the divers.

(d) The operations manual must contain the following:

(1) Safety procedures and checklists for each diving mode used.

(2) Assignments and responsibilities of each dive team member for each diving mode used.

(3) Equipment procedures and checklists for each diving mode used.

(4) Emergency procedures for—

(i) Fire;

(ii) Equipment failure;

(iii) Adverse environmental conditions including, but not limited to, weather and sea state;

(iv) Medical illness; and

(v) Treatment of injury.

(5) Procedures dealing with the use of—

(i) Hand-held power tools;

(ii) Welding and burning equipment; and

(iii) Explosives.

SPECIFIC DIVING MODE PROCEDURES

§ 197.430 SCUBA diving.

The diving supervisor shall insure that—

(a) SCUBA diving is not conducted—

(1) Outside the no-decompression limits;

(2) At depths greater than 130 fsw;

(3) Against currents greater than one (1) knot unless line-tended; and

(4) If a diver cannot directly ascend to the surface unless line-tended;

(b) The SCUBA diver has the equipment required by § 197.346(a);

(c) A standby diver is available while a diver is in the water;

(d) A diver is line-tended from the surface or accompanied by another diver in the water in continuous visual contact during the diving operation;

(e) When a diver is in a physically confining space, another diver is stationed at the underwater point of

§ 197.432

entry and is line-tending the diver; and

(f) A boat is available for diver pickup when the divers are not line-tended from the dive location.

§ 197.432 Surface-supplied air diving.

The diving supervisor shall insure that—

(a) Surface-supplied air diving is conducted at depths less than 190 fsw, except that dives with bottom times of 30 minutes or less may be conducted to depths of 220 fsw;

(b) Each diving operation has a primary breathing gas supply;

(c) Each diver is continuously tended while in the water;

(d) When a diver is in a physically confining space, another diver is stationed at the underwater point of entry and is line-tending the diver;

(e) For dives deeper than 130 fsw or outside the no-decompression limits—

(1) Each diving operation has a secondary breathing gas supply;

(2) A decompression chamber is ready for use at the dive location;

(3) A diving stage is used except when a bell is provided;

(4) A bell is used for dives with an in-water decompression time greater than 120 minutes, except when the diver is using a heavy-weight diving outfit or is diving in a physically confining space;

(5) A separate dive team member tends each diver in the water;

(6) A standby diver is available while a diver is in the water; and

(7) Each diver has a diver-carried reserve breathing gas supply except when using a heavy-weight diving outfit or when diving in a physically confining space; and

(f) The surface-supplied air diver has the equipment required by § 197.346 (b) or (d).

§ 197.434 Surface-supplied mixed-gas diving.

The diving supervisor shall insure that—

(a) When mixed-gas diving is conducted, a decompression chamber or a closed bell meeting the requirements of § 197.332 is ready for use at the dive location;

46 CFR Ch. I (10-1-90 Edition)

(b) A diving stage is used except when a bell is provided;

(c) A bell is used for dives deeper than 220 fsw or when the dive involves in-water decompression times greater than 120 minutes, except when the diver is using a heavy-weight diving outfit or is diving in a physically confining space;

(d) A closed bell is used for dives at depths greater than 300 fsw, except when diving is conducted in a physically confining space;

(e) A separate dive team member tends each diver in the water;

(f) A standby diver is available during all nonsaturation dives;

(g) When saturation diving is conducted—

(1) A standby diver is available when the closed bell leaves the dive location until the divers are in saturation; and

(2) A member of the dive team at the dive location is a diver able to assist in the recovery of the closed bell or its occupants, if required;

(h) When closed bell operations are conducted, a diver is available in the closed bell to assist a diver in the water;

(i) When a diver is in a physically confining space, another diver is stationed at the underwater point of entry and is line-tending the diver;

(j) Each diving operation has a primary and secondary breathing gas supply meeting the requirements of § 197.340; and

(k) The surface-supplied mixed-gas diver has the equipment required by § 197.346 (b) or (d).

§ 197.436 Liveboating.

(a) During liveboating operations, the person-in-charge shall insure that—

(1) Diving is not conducted in seas that impede station-keeping ability of the vessel;

(2) Liveboating operations are not conducted—

(i) From 1 hour after sunset to 1 hour before sunrise; or

(ii) During periods of restricted visibility;

(3) The propellers of the vessel are stopped before the diver enters or exits the water; and

(4) A boat is ready to be launched with crew in the event of an emergency.

(b) As used in paragraph (a)(2)(ii) of this section, "restricted visibility" means any condition in which vessel navigational visibility is restricted by fog, mist, falling snow, heavy rainstorms, sandstorms or any other similar causes.

(c) During liveboating operations, the diving supervisor shall insure that—

(1) Diving is not conducted at depths greater than 220 fsw;

(2) Diving is not conducted in seas that impede diver mobility or work function;

(3) A means is used to prevent the diver's hose from entangling in the propellers of the vessel;

(4) Each diver carries a reserve breathing gas supply;

(5) A standby diver is available while a diver is in the water;

(6) Diving is not conducted with in-water decompression times greater than 120 minutes; and

(7) The person-in-charge is notified before a diver enters or exits the water.

PERIODIC TESTS AND INSPECTIONS OF DIVING EQUIPMENT

§ 197.450 Breathing gas tests.

The diving supervisor shall insure that—

(a) The output of each air compressor is tested and meets the requirements of § 197.340 for quality and quantity by means of samples taken at the connection point to the distribution system—

(1) Every 6 months; and

(2) After every repair or modification.

(b) Purchased supplies of breathing mixtures supplied to a diver are checked before being placed on line for—

(1) Certification that the supply meets the requirements of § 197.340; and

(2) Noxious or offensive odor and oxygen percentage;

(c) Each breathing supply system is checked, prior to commencement of diving operations, at the umbilical or

underwater breathing apparatus connection point for the diver, for noxious or offensive odor and presence of oil mist; and

(d) Each breathing supply system, supplying mixed-gas to a diver, is checked, prior to commencement of diving operations, at the umbilical or underwater breathing apparatus connection point for the diver, for percentage of oxygen.

§ 197.452 Oxygen cleaning.

The diving supervisor shall ensure that equipment used with oxygen or oxygen mixtures greater than 40 percent by volume is cleaned of flammable materials—

(a) Before being placed into service; and

(b) After any repair, alteration, modification, or suspected contamination.

§ 197.454 First aid and treatment equipment.

The diving supervisor shall ensure that medical kits are checked monthly to insure that all required supplies are present.

§ 197.456 Breathing supply hoses.

(a) The diving supervisor shall insure that—

(1) Each breathing supply hose is pressure tested prior to being placed into initial service and every 24 months thereafter to 1.5 times its maximum working pressure;

(2) Each breathing supply hose assembly, prior to being placed into initial service and after any repair, modification, or alteration, is tensile tested by—

(i) Subjecting each hose-to-fitting connection to a 200 pound axial load; and

(ii) Passing a visual examination for evidence of separation, slippage, or other damage to the assembly;

(3) Each breathing supply hose is periodically checked for—

(i) Damage which is likely to affect pressure integrity; and

(ii) Contamination which is likely to affect the purity of the breathing mixture delivered to the diver; and

§ 197.458

46 CFR Ch. I (10-1-90 Edition)

(4) The open ends of each breathing supply hose are taped, capped, or plugged when not in use.

(b) To meet the requirements of paragraph (a)(3) of this section, each breathing supply hose must be—

(1) Carefully inspected before being shipped to the dive location;

(2) Visually checked during daily operation; and

(3) Checked for noxious or offensive odor before each diving operation.

§ 197.458 Gages and timekeeping devices.

The diving supervisor shall insure that—

(a) Each depth gage and timekeeping device is tested or calibrated against a master reference gage or time-keeping device every 6 months;

(b) A depth gage is tested when a discrepancy exists in a depth gage reading greater than 2 percent of full scale between any two gages of similar range and calibration;

(c) A timekeeping device is tested when a discrepancy exists in a timekeeping device reading greater than one-quarter of a minute in a 4-hour period between any two timekeeping devices; and

(d) Each depth gage and timekeeping device is inspected before diving operations are begun.

§ 197.460 Diving equipment.

The diving supervisor shall insure that the diving equipment designated for use in a dive under § 197.346 is inspected before each dive.

§ 197.462 Pressure vessels and pressure piping.

(a) The diving supervisor shall insure that each volume tank, cylinder, PVHO, and pressure piping system has been examined and tested every 12 months and after any repair, modification, or alteration to the extent necessary to determine that they are in condition and fit for the service intended.

(b) The following tests must be made to meet the annual requirements of paragraph (a) of this section:

(1) An internal and external visual examination for mechanical damage or deterioration. If a defect is found that may impair the safety of the

pressure vessel, a hydrostatic test must be performed.

(2) A leak test.

(3) A pneumatic test.

(4) A hydrostatic test every fifth year instead of the pneumatic test.

(c) The following tests must be made after any repair, modification, or alteration to meet the requirements of paragraph (a) of this section:

(1) An internal and external visual examination for correctness and adequacy of repair, modification, or alteration.

(2) A leak test.

(3) A hydrostatic test when the repair, modification, or alteration affects the pressure boundary.

(d) When the pneumatic test on pressure vessels is conducted—

(1) The test pressure must be the maximum allowable working pressure stamped on the pressure vessel; and

(2) The test may be conducted only after suitable precautions are taken to protect personnel and equipment.

(e) When the pneumatic test on pressure piping is conducted:

(1) The test pressure must be no less than 90 percent of the setting of the relief device; and

(2) The test may be conducted only after suitable precautions are taken to protect personnel and equipment.

(f) When a hydrostatic test on a pressure vessel is made, the test pressure must be:

(1) 1½ times the pressure stamped on the pressure vessel built to division 2 of the ASME Code; and

(2) 1½ times the pressure stamped on the pressure vessel built to division 1 of the ASME Code.

(g) When a hydrostatic test on pressure piping is conducted, the test must be conducted in accordance with the ANSI Code.

(h) When the leak test on pressure vessels or pressure piping is conducted:

(1) The test must be conducted with the breathing mixture normally used in service;

(2) The test must be conducted at the maximum allowable working pressure; and

(3) The test pressure must be maintained for a minimum of 10 minutes to allow checking all joints, connections, and regions of high stress for leakage.

RECORDS

480 Logbooks.

The person-in-charge of a vessel subject to the requirements of 46 U.S.C. 201 to have an official logbook shall maintain on board, a logbook on form CG-706.

The person-in-charge of a vessel not required by 46 U.S.C. to have an official logbook, shall maintain, on board, a logbook for the entries required by this part.

The diving supervisor conducting commercial diving operations from a vessel or facility subject to this subpart shall maintain a logbook for the entries required by this part.

482 Logbook entries.

The person-in-charge shall insure that the following information is recorded in the logbook for each commercial diving operation:

Date, time, and location at the start and completion of dive operations.

Approximate underwater and surface conditions (weather, visibility, temperatures, and currents).

Name of the diving supervisor.

General nature of work performed.

The diving supervisor shall insure that the following information is recorded in the logbook for each commercial diving operation:

Date, time, and location at the start and completion of each dive operation.

Approximate underwater and surface conditions (weather, visibility, temperatures, and currents).

Names of dive team members including diving supervisor.

General nature of work performed.

Repetitive dive designation or elapsed time since last hyperbaric exposure if less than 24 hours for each dive.

Diving modes used.

Maximum depth and bottom time for each diver.

Name of person-in-charge.

For each dive outside the no-decompression limits, deeper than 130 feet or using mixed-gas, the breathing

gases and decompression table designations used.

(10) When decompression sickness or gas embolism is suspected or symptoms are evident—

(i) The name of the diver; and

(ii) A description and results of treatment.

(11) For each fatality or any diving related injury or illness that results in incapacitation of more than 72 hours or requires any dive team member to be hospitalized for more than 24 hours—

(i) The date;

(ii) Time;

(iii) Circumstances; and

(iv) Extent of any injury or illness.

(c) The diving supervisor shall insure that the following is recorded in the logbook for each diving operation deviating from the requirements of this subpart:

(1) A description of the circumstances leading to the situation.

(2) The deviations made.

(3) The corrective action taken, if appropriate, to reduce the possibility of recurrence.

(d) The diving supervisor shall insure that a record of the following is maintained:

(1) The date and results of each check of the medical kits.

(2) The date and results of each test of the air compressor.

(3) The date and results of each check of breathing mixtures.

(4) The date and results of each check of each breathing supply system.

(5) The date, equipment cleaned, general cleaning procedure, and names of persons cleaning the diving equipment for oxygen service.

(6) The date and results of each test of the breathing supply hoses and system.

(7) The date and results of each inspection of the breathing gas supply system.

(8) The date and results of each test of depth gages and timekeeping devices.

(9) The date and results of each test and inspection of each PVHO.

(10) The date and results of each inspection of the diving equipment.

§ 197.484

(11) The date and results of each test and inspection of pressure piping.

(12) The date and results of each test and inspection of volume tanks and cylinders.

(e) The diving supervisor shall insure that a notation concerning the location of the information required under paragraph (d) is made in the logbook.

NOTE: R.S. 4290 (46 U.S.C. 201) requires that certain entries be made in an official logbook in addition to the entries required by this section; and R.S. 4291 (46 U.S.C. 202) prescribes the manner of making those entries.

§ 197.484 Notice of casualty.

(a) In addition to the requirements of Subpart 4.05 of this chapter and 33 CFR 146.01-20, the person-in-charge shall notify the Officer-in-Charge, Marine Inspection, as soon as possible after a diving casualty occurs, if the casualty involves any of the following:

(1) Loss of life.

(2) Diving-related injury to any person causing incapacitation for more than 72 hours.

(3) Diving-related injury to any person requiring hospitalization for more than 24 hours.

(b) The notice required by this section must contain the following:

(1) Name and official number (if applicable) of the vessel or facility.

(2) Name of the owner or agent of the vessel or facility.

(3) Name of the person-in-charge.

(4) Name of the diving supervisor.

(5) Description of the casualty including presumed cause.

(6) Nature and extent of the injury to persons.

(c) The notice required by this section is not required if the written report required by § 197.486 is submitted within 5 days of the casualty.

§ 197.486 Written report of casualty.

The person-in-charge of a vessel or facility for which a notice of casualty was made under § 197.484 shall submit a report to the Officer-in-Charge, Marine Inspection, as soon as possible after the casualty occurs, as follows:

(a) On Form CG-2692, when the diving installation is on a vessel.

46 CFR Ch. I (10-1-90 Edition)

(b) Using a written report, in narrative form, when the diving installation is on a facility. The written report must contain the information required by § 197.484.

(c) The report required by this section must be accompanied by a copy of the report required by § 197.410(a)(9) when decompression sickness is involved.

(d) The report required by this section must include information relating to alcohol or drug involvement as required by § 4.05-12 of this chapter.

(The reporting requirement in paragraph (a) was approved by OMB under control number 2115-0003)

[CGD 76-009, 43 FR 53683, Nov. 16, 1978, as amended by CGD 82-023, 47 FR 35748, Aug. 16, 1982; 48 FR 43328, Sept. 23, 1983; CGD 84-099, 52 FR 47536, Dec. 14, 1987]

§ 197.488 Retention of records after casualty.

(a) The owner, agent, or person-in-charge of a vessel or facility for which a report of casualty is made under § 197.484 shall retain all records on-board that are maintained on the vessel or facility and those records required by this subpart for 6 months after the report of a casualty is made or until advised by the Officer-in-Charge, Marine Inspection, that records need not be retained on-board.

(b) The records required by paragraph (a) of this section to be retained on board include, but are not limited to, the following:

(1) All logbooks required by § 197.480.

(2) All reports required by § 197.402(a)(2)(ii), § 197.404(a)(4), § 197.410(a)(9).

(c) The owner, agent, person-in-charge, or diving supervisor shall, upon request, make the records described in this section available for examination by any Coast Guard official authorized to investigate the casualty.

APPENDIX A—AIR NO-DECOMPRESSION LIMITS

The following table gives the depth versus bottom time limits for single, no-decompression, air dives made within any 12-hour period. The limit is the maximum bottom time in minutes that a diver can spend at

depth without requiring decompression and that provided by a normal ascent of 60 fsw per minute. (Although bottom time is concluded when ascent begins, a slower ascent rate would increase the bottom time thereby requiring decompression.) An amount of nitrogen remains in the tissues of a diver after any air dive, regardless of whether the dive was a decompression or no-decompression dive. Whenever another dive is made within a 12-hour period, the nitrogen remaining in the blood and body tissues of the diver must be considered when calculating his decompression.

AIR NO-DECOMPRESSION LIMITS

Depth (feet):	No-decompression limits (minutes)
35.....	310
40.....	200
50.....	100
60.....	60
70.....	50
80.....	40
90.....	30
100.....	25
110.....	20
120.....	15
130.....	10

(Source: U.S. Navy Diving Manual, 1 September 1973.)

PARTS 198-199—[RESERVED]

FINDING AIDS

A list of CFR titles, subtitles, chapters, subchapters and parts and an alphabetical list of agencies publishing in the CFR are included in the CFR Index and Finding Aids volume to the Code of Federal Regulations which is published separately and revised annually.

Material Approved for Incorporation by Reference

Table of CFR Titles and Chapters

Alphabetical List of Agencies Appearing in the CFR

Redesignation Tables

List of CFR Sections Affected

Material Approved for Incorporation by Reference

(Revised as of October 1, 1990)

The Director of the Federal Register has approved under 5 U.S.C. 552(a) and 1 R Part 51 the incorporation by reference of the following publications. This contains only those incorporations by reference effective as of the revision of this volume. Incorporations by reference found within a regulation are effective upon the effective date of that regulation. For more information on incorporation by reference, see the preliminary pages of this volume.

CFR SUBCHAPTER R COAST GUARD, DEPARTMENT OF TRANSPORTATION

46 CFR

American Boat and Yacht Council P.O. Box 806—190 Ketchum Ave., Amityville, NY 11701	169.115; 169.609; 169.703
1-73—Safe Installation of Exhaust Systems for Propulsion and Auxiliary Engines, 1973.	169.115; 169.629
24.9 (g) and (h)—Fuel Strainers and Fuel Filters, 1975	169.115; 169.629
25—Ventilation of Boats Using Gasoline—Design and Construction, 1981.	169.115; 169.703
1-78—Marine LPG—Liquefied Petroleum Gas Systems, 1978	169.115; 169.703
3-70—Recommended Practices and Standards Covering Galley Stoves, 1970.	169.115; 169.703
22-78—Marine CHG—Compressed Natural Gas Systems, 1978	169.115; 169.703
American Bureau of Shipping 45 Eisenhower Drive, Paramus, NJ 07652	167.15-27; 167.20-1
Rules for Building and Classing Steel Vessels, 1981	
Institute of Electrical and Electronic Engineers (formerly American Institute of Electrical Engineers) 345 East 47th St., New York, NY 10017	167.25-1; 167.40-1
45—Recommended Practice for Electrical Installations on Shipboard, 1977.	
National Fire Protection Association Batterymarch Park, Quincy, MA 02269	169.115; 169.672
70—National Electrical Code, 1980	169.115; 169.703
302—Pleasure and Commercial Motor Craft Chapter 6, 1980	167.30-1; 169.115;
306—Control of Gas Hazards on Vessels, 1980	169.236
National Institute of Standards and Technology (formerly National Bureau of Standards) c/o Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402	160.041; 169.115
Special Pub. 440 (SD Cat. No. C13, 10.490) Color: Universal Language and Dictionary of Names, 1976.	
Naval Publications and Forms Center Customer Service, Code 1052, 5801 Tabor Ave., Philadelphia, PA 19120	

Federal specification:

Title 46—Shipping

46 CFR SUBCHAPTER R—Continued

COAST GUARD, DEPARTMENT OF TRANSPORTATION—Continued

46 CFR

ZZ-H-451 Hose, Fire, Woven-Jacketed Rubber or Cambric-lined, with Couplings, F. 167.45-5; 169.115; 169.563

Underwriters Laboratories

333 Pfingsten Rd., Northbrook, IL 60062

UL 19-78 Woven-jacketed Rubber Lined Fire Hose 167.45-5; 169.115; 169.563

ANSI/UL 1196 Standard for Floating Waterlights, Second Edition, March 23, 1987. 161.010-1; 161.010-2; 161.010-4

46 CFR SUBCHAPTER S

COAST GUARD, DEPARTMENT OF TRANSPORTATION

Military Specifications:

MIL-P-21929B; Plastic Material, Cellular Polyurethane, Foam in Place, Rigid (1970).. 170.245

International Maritime Organization

IMO Sales, New York Nautical Instrument and Service Corp., 140 W. Broadway, New York, NY 10013

Resolution A.265 (VIII)..... 170.135, 171.075, 171.082

46 CFR SUBCHAPTER T

COAST GUARD, DEPARTMENT OF TRANSPORTATION

46 CFR

American Boat and Yacht Council

P.O. Box 806—190 Ketchum Ave., Amityville, NY 11701

P-1—Safe Installation of Exhaust Systems for Propulsion and Auxiliary Machinery, 1973. 182.15-15; 182.15-20

Standard A-1-78 Marine LPG-Liquefied Petroleum Gas Systems, December 15, 1978. 184.05-1

Standard A-22-78 Marine CNG-Compressed Natural Gas Systems, December 15, 1978. 184.05-1

Institute of Electrical and Electronic Engineers (formerly American Institute of Electrical Engineers)

345 East 47th St., New York, NY 10017

45—Recommended Practice for Electrical Installations on Shipboard, 1977. 183.01-15; 183.05-4; 183.10-10

American Society for Testing and Materials

1916 Race St., Philadelphia, PA 19103

ASTM B 97-77 Copper-Silicon Alloy Plate, Sheet, Strip and Rolled Bar for General Purposes. 182.15-25

ASTM B 122-79 Copper-Nickel Zinc Alloy (Nickel Silver) and Copper-Nickel Alloy Plate, Strip, and Rolled Bar. 182.15-25

ASTM B 127-80a Nickel-Copper Alloy (UNS NO4400) Plate, Sheet and Strip. 182.15-25; 182.20-2

ASTM B 152-79 Copper, Sheet, Strip, Plate and Rolled Bar..... 182.15-25

ASTM B 209-81 Aluminum Alloy Sheet and Plate..... 182.15-25; 182.20-2

ASTM D 93-80 Test for Flash Point by Pensky-Martens Closed Tester 182.15-1; 182.20-1

ASTM D 323-79 Test for Vapor Pressure of Petroleum Products (Reid Method). 188.10-21

Naval Publications and Forms Center

Customer Service, Code 1052, 5801 Tabor Ave., Philadelphia, PA 19120

Material Approved for Incorporation by Reference

46 CFR SUBCHAPTER T—Continued

COAST GUARD, DEPARTMENT OF TRANSPORTATION—Continued

46 CFR

Federal Specification:

ZZ-H-451 Hose, Fire, Woven-jacketed Rubber or Cambric-lined, 181.15-10
with Couplings, F.
NAVSEA Cable Comparison Guide, 1975..... 183.10-20

National Fire Protection Association

Batterymarch Park, Quincy, MA 02269
70—National Electrical Code, 1980 183.01-10; 183.05-45;
183.05-50; 183.10-20
902—Pleasure and Commercial Motor Craft, 1989..... 184.05-1

Underwriters Laboratories

333 Pfingsten Rd., Northbrook, IL 60062
UL 19-78 Woven-Jacketed, Rubber Lined Fire Hose 181.15-10
UL 197-78 (Revisions through 1979) Commercial Electric Cooking Ap-
pliances. 183.01-15; 183.10-45
UL 595-74 (Revisions through 1980) Marine Type Electric Lighting 183.01-15
Fixtures.
UL 1102-80 Non Integral Marine Fuel Tanks..... 182.15-25

46 CFR SUBCHAPTER U

COAST GUARD, DEPARTMENT OF TRANSPORTATION

46 CFR

American Bureau of Shipping

45 Eisenhower Drive, Paramus, NJ 07652
Rules for Building and Classing Steel Vessels, 1981 188.35-1; 189.15-1;
190.01-10; 190.01-15; 195.01-5

Coast Guard

Commandant [G-MVI], 2100 2nd St., SW, Washington, DC 20593
180.014—"Compass and Mounting dated Dec. 14, 1944" (Specification 192.20-15
for Compasses: Magnetic, Liquid-filled, Mariners, Compensating, for
Lifeboats (with mounting) for Merchant Vessels), 1944.

Naval Publications and Forms Center

Customer Service, Code 1052, 5801 Tabor Ave., Philadelphia, PA
19120

Federal Specification:

ZZ-H-451 Hose, Fire, Woven-jacketed, Rubber or Cambric Lined, 193.10-10
with Couplings, F.

National Fire Protection Association

Batterymarch Park, Quincy, MA 02269
306—Control of Gas Hazards on Vessels (Formerly "Control of Gas 189.50-1
Hazards on Vessels to be Repaired"), 1975.

Underwriters Laboratories

333 Pfingsten Rd., Northbrook, IL 60002
UL 19-71 Woven Jacketed, Rubber Lined Fire Hose 193.10-10

Title 46—Shipping

46 CFR SUBCHAPTER V COAST GUARD, DEPARTMENT OF TRANSPORTATION

46 CFR

American National Standards Institute

1430 Broadway, New York, NY 10018

ANSI B31.1—80 Power Piping.....	197.204; 197.205; 197.336ANSI/ ASME PVHO 1 Safety Standard for Pressure Vessels for Human Occupancy. 1981 197.204; 197.205; 197.300; 197.328
---------------------------------	---

American Society of Mechanical Engineers

United Engineering Center, 345 East 47th St., New York, NY 10017

Boiler and Pressure Vessel Code, Section VIII, 1980.....	197.204; 197.205; 197.300; 197.310; 197.328
--	---

Naval Publications and Forms Center

Customer Service, Code 1052, 5801 Tabor Ave., Philadelphia, PA
19120

Federal Specifications:

BB-N-411 Nitrogen, Technical, C	197.340
BB-O-925 Oxygen, Technical, Gas and Liquid, A	197.340

Table of CFR Titles and Chapters

(Revised as of September 14, 1990)

Title 1—General Provisions

- I Administrative Committee of the Federal Register (Parts 1—49)
- II Office of the Federal Register (Parts 50—299)
- III Administrative Conference of the United States (Parts 300—399)
- IV Miscellaneous Agencies (Parts 400—500)

Title 2—[Reserved]

Title 3—The President

- I Executive Office of the President (Parts 100—199)

Title 4—Accounts

- I General Accounting Office (Parts 1—99)
- II Federal Claims Collection Standards (General Accounting Office—Department of Justice) (Parts 100—299)
- III General Accounting Office (CASB) (Parts 300—499)

Title 5—Administrative Personnel

- I Office of Personnel Management (Parts 1—1199)
- II Merit Systems Protection Board (Parts 1200—1299)
- III Office of Management and Budget (Parts 1300—1399)
- IV Advisory Committee on Federal Pay (Parts 1400—1499)
- V The International Organizations Employees Loyalty Board (Parts 1500—1599)
- VI Federal Retirement Thrift Investment Board (Parts 1600—1699)
- VII Advisory Commission on Intergovernmental Relations (Parts 1700—1799)
- VIII Office of Special Council (Parts 1800—1899)
- IX Appalachian Regional Commission (Parts 1900—1999)
- XI United States Soldiers' and Airmen's Home (Parts 2100—2199)
- XIV Federal Labor Relations Authority, General Counsel of the Federal Labor Relations Authority and Federal Service Impasses Panel (Parts 2400—2499)

Title 5—Administrative Personnel—Continued

Chap.

- XV Office of Administration, Executive Office of the President
(Parts 2500—2599)
- XVI Office of Government Ethics (Parts 2600—2699)

Title 6—[Reserved]

Title 7—Agriculture

SUBTITLE A—Office of the Secretary of Agriculture (Parts 0—26)

SUBTITLE B—Regulations of the Department of Agriculture

- I Agricultural Marketing Service (Standards, Inspections, Marketing Practices), Department of Agriculture (Parts 27—209)
- II Food and Nutrition Service, Department of Agriculture (Parts 210—299)
- III Animal and Plant Health Inspection Service, Department of Agriculture (Parts 300—399)
- IV Federal Crop Insurance Corporation, Department of Agriculture (Parts 400—499)
- V Agricultural Research Service, Department of Agriculture (Parts 500—599)
- VI Soil Conservation Service, Department of Agriculture (Parts 600—699)
- VII Agricultural Stabilization and Conservation Service (Agricultural Adjustment), Department of Agriculture (Parts 700—799)
- VIII Federal Grain Inspection Service, Department of Agriculture (Parts 800—899)
- IX Agricultural Marketing Service (Marketing Agreements and Orders; Fruits, Vegetables, Nuts), Department of Agriculture (Parts 900—999)
- X Agricultural Marketing Service (Marketing Agreements and Orders; Milk), Department of Agriculture (Parts 1000—1099)
- XI Agricultural Marketing Service (Marketing Agreements and Orders; Miscellaneous Commodities), Department of Agriculture (Parts 1200—1299)
- XIV Commodity Credit Corporation, Department of Agriculture (Parts 1400—1499)
- XV Foreign Agricultural Service, Department of Agriculture (Parts 1500—1599)
- XVI Rural Telephone Bank, Department of Agriculture (Parts 1600—1699)
- XVII Rural Electrification Administration, Department of Agriculture (Parts 1700—1799)
- XVIII Farmers Home Administration, Department of Agriculture (Parts 1800—2099)
- XXI Foreign Economic Development Service, Department of Agriculture (Parts 2100—2199)
- XXII Office of International Cooperation and Development, Department of Agriculture (Parts 2200—2299)

Title 7—Agriculture—Continued

- | Chap. | |
|---------|---|
| XXIV | Board of Contract Appeals, Department of Agriculture (Parts 2400—2499) |
| XXV | Office of the General Sales Manager, Department of Agriculture (Parts 2500—2599) |
| XXVI | Office of Inspector General, Department of Agriculture (Parts 2600—2699) |
| XXVII | Office of Information Resources Management, Department of Agriculture (Parts 2700—2799) |
| XXVIII | Office of Operations, Department of Agriculture (Parts 2800—2899) |
| XXIX | Office of Energy, Department of Agriculture (Parts 2900—2999) |
| XXX | Office of Finance and Management, Department of Agriculture (Parts 3000—3099) |
| XXXI | Office of Environmental Quality, Department of Agriculture (Parts 3100—3199) |
| XXXII | Office of Grants and Program Systems, Department of Agriculture (Parts 3200—3299) |
| XXXIII | Office of Transportation, Department of Agriculture (Parts 3300—3399) |
| XXXIV | Cooperative State Research Service, Department of Agriculture (Parts 3400—3499) |
| XXXVI | National Agricultural Statistics Service, Department of Agriculture (Parts 3600—3699) |
| XXXVII | Economic Research Service, Department of Agriculture (Parts 3700—3799) |
| XXXVIII | World Agricultural Outlook Board, Department of Agriculture (Parts 3800—3899) |
| XXXIX | Economic Analysis Staff, Department of Agriculture (Parts 3900—3999) |
| XL | Economics Management Staff, Department of Agriculture (Parts 4000—4099) |
| XLI | National Agricultural Library, Department of Agriculture (Part 4100) |

Title 8—Aliens and Nationality

- I Immigration and Naturalization Service, Department of Justice (Parts 1—499)

Title 9—Animals and Animal Products

- I Animal and Plant Health Inspection Service, Department of Agriculture (Parts 1—199)
- II Packers and Stockyards Administration, Department of Agriculture (Parts 200—299)
- III Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture (Parts 300—399)

Title 10—Energy

Chap.

- I Nuclear Regulatory Commission (Parts 0—199)
- II Department of Energy (Parts 200—699)
- III Department of Energy (Parts 700—999)
- X Department of Energy (General Provisions) (Parts 1000—1099)
- XV Office of the Federal Inspector for the Alaska Natural Gas Transportation System (Parts 1500—1599)

Title 11—Federal Elections

- I Federal Election Commission (Parts 1—9099)

Title 12—Banks and Banking

- I Comptroller of the Currency, Department of the Treasury (Parts 1—199)
- II Federal Reserve System (Parts 200—299)
- III Federal Deposit Insurance Corporation (Parts 300—399)
- IV Export-Import Bank of the United States (Parts 400—499)
- V Office of Thrift Supervision, Department of The Treasury (Parts 500—599)
- VI Farm Credit Administration (Parts 600—699)
- VII National Credit Union Administration (Parts 700—799)
- VIII Federal Financing Bank (Parts 800—899)
- IX Federal Housing Finance Board (Parts 900—999)
- XI Federal Financial Institutions Examination Council (Parts 1100—1199)
- XIII Farm Credit System Assistance Board (Parts 1300—1399)
- XIV Farm Credit System Insurance Corporation
- XV Oversight Board (Parts 1500—1599)
- XVI Resolution Trust Corporation (Parts 1600—1699)

Title 13—Business Credit and Assistance

- I Small Business Administration (Parts 1—199)
- III Economic Development Administration, Department of Commerce (Parts 300—399)

Title 14—Aeronautics and Space

- I Federal Aviation Administration, Department of Transportation (Parts 1—199)
- II Office of the Secretary, Department of Transportation (Aviation Proceedings) (Parts 200—399)
- III Office of Commercial Space Transportation, Department of Transportation (Parts 400—499)
- V National Aeronautics and Space Administration (Parts 1200—1299)

Title 15—Commerce and Foreign Trade

Chap.

SUBTITLE A—Office of the Secretary of Commerce (Parts 0—29)

SUBTITLE B—Regulations Relating to Commerce and Foreign Trade

- I Bureau of the Census, Department of Commerce (Parts 30—199)
- II National Institute of Standards and Technology, Department of Commerce (Parts 200—299)
- III International Trade Administration, Department of Commerce (Parts 300—399)
- IV Foreign-Trade Zones Board (Parts 400—499)
- VII Bureau of Export Administration, Department of Commerce (Parts 700—799)
- VIII Bureau of Economic Analysis, Department of Commerce (Parts 800—899)
- IX National Oceanic and Atmospheric Administration, Department of Commerce (Parts 900—999)
- XI Technology Administration, Department of Commerce (Parts 1100—1199)
- XII United States Travel Service, Department of Commerce (Parts 1200—1299)
- XIII East-West Foreign Trade Board (Parts 1300—1399)
- XIV Minority Business Development Agency (Parts 1400—1499)
- SUBTITLE C—Regulations Relating to Foreign Trade Agreements
- XX Office of the United States Trade Representative (Parts 2000—2099)
- SUBTITLE D—Regulations Relating to Telecommunications and Information
- XXIII National Telecommunications and Information Administration, Department of Commerce (Parts 2300—2399)

Title 16—Commercial Practices

- I Federal Trade Commission (Parts 0—999)
- II Consumer Product Safety Commission (Parts 1000—1799)

Title 17—Commodity and Securities Exchanges

- I Commodity Futures Trading Commission (Parts 1—199)
- II Securities and Exchange Commission (Parts 200—399)
- IV Department of the Treasury (Parts 400—499)

Title 18—Conservation of Power and Water Resources

- I Federal Energy Regulatory Commission, Department of Energy (Parts 1—399)
- III Delaware River Basin Commission (Parts 400—499)
- VI Water Resources Council (Parts 700—799)
- VIII Susquehanna River Basin Commission (Parts 800—899)

Title 18—Conservation of Power and Water Resources—Continued
Chap.

XIII Tennessee Valley Authority (Parts 1300—1399)

Title 19—Customs Duties

- I United States Customs Service, Department of the Treasury (Parts 1—199)
- II United States International Trade Commission (Parts 200—299)
- III International Trade Administration, Department of Commerce (Parts 300—399)

Title 20—Employees' Benefits

- I Office of Workers' Compensation Programs, Department of Labor (Parts 1—199)
- II Railroad Retirement Board (Parts 200—399)
- III Social Security Administration, Department of Health and Human Services (Parts 400—499)
- IV Employees' Compensation Appeals Board, Department of Labor (Parts 500—599)
- V Employment and Training Administration, Department of Labor (Parts 600—699)
- VI Employment Standards Administration, Department of Labor (Parts 700—799)
- VII Benefits Review Board, Department of Labor (Parts 800—899)
- VIII Joint Board for the Enrollment of Actuaries (Parts 900—999)
- IX Office of the Assistant Secretary for Veterans' Employment and Training, Department of Labor (Parts 1000—1099)

Title 21—Food and Drugs

- I Food and Drug Administration, Department of Health and Human Services (Parts 1—1299)
- II Drug Enforcement Administration, Department of Justice (Parts 1300—1399)

Title 22—Foreign Relations

- I Department of State (Parts 1—199)
- II Agency for International Development, International Development Cooperation Agency (Parts 200—299)
- III Peace Corps (Parts 300—399)
- IV International Joint Commission, United States and Canada (Parts 400—499)
- V United States Information Agency (Parts 500—599)
- VI United States Arms Control and Disarmament Agency (Parts 600—699)
- VII Overseas Private Investment Corporation, International Development Cooperation Agency (Parts 700—799)
- IX Foreign Service Grievance Board Regulations (Parts 900—999)
- X Inter-American Foundation (Parts 1000—1099)

Title 22—Foreign Relations—Continued

- Chap.
- XI International Boundary and Water Commission, United States and Mexico, United States Section (Parts 1100—1199)
 - XII United States International Development Cooperation Agency (Parts 1200—1299)
 - XIII Board for International Broadcasting (Parts 1300—1399)
 - XIV Foreign Service Labor Relations Board; Federal Labor Relations Authority; General Counsel of the Federal Labor Relations Authority; and the Foreign Service Impasse Disputes Panel (Parts 1400—1499)
 - XV African Development Foundation (Parts 1500—1599)
 - XVI Japan-United States Friendship Commission (Parts 1600—1699)

Title 23—Highways

- I Federal Highway Administration, Department of Transportation (Parts 1—999)
- II National Highway Traffic Safety Administration and Federal Highway Administration, Department of Transportation (Parts 1200—1299)
- III National Highway Traffic Safety Administration, Department of Transportation (Parts 1300—1399)

Title 24—Housing and Urban Development

SUBTITLE A—Office of the Secretary, Department of Housing and Urban Development (Parts 0—99)

SUBTITLE B—Regulations Relating to Housing and Urban Development

- I Office of Assistant Secretary for Equal Opportunity, Department of Housing and Urban Development (Parts 100—199)
- II Office of Assistant Secretary for Housing-Federal Housing Commissioner, Department of Housing and Urban Development (Parts 200—299)
- III Government National Mortgage Association, Department of Housing and Urban Development (Parts 300—399)
- V Office of Assistant Secretary for Community Planning and Development, Department of Housing and Urban Development (Parts 500—599)
- VI Office of Assistant Secretary for Community Planning and Development, Department of Housing and Urban Development (Parts 600—699)
- VII Office of the Secretary, Department of Housing and Urban Development (Section 8 Housing Assistance Programs and Public and Indian Housing Programs) (Parts 700—799)
- VIII Office of the Assistant Secretary for Housing—Federal Housing Commissioner, Department of Housing and Urban Development (Section 8 Housing Assistance Programs and Section 202 Direct Loan Program) (Parts 800—899)
- IX Office of Assistant Secretary for Public and Indian Housing, Department of Housing and Urban Development (Parts 900—999)

Title 24—Housing and Urban Development—Continued

Chap.

- X Office of Assistant Secretary for Housing—Federal Housing Commissioner, Department of Housing and Urban Development (Interstate Land Sales Registration Program) (Parts 1700—1799)
- XI Solar Energy and Energy Conservation Bank, Department of Housing and Urban Development (Parts 1800—1899)
- XII Office of Inspector General, Department of Housing and Urban Development (Parts 2000—2099)
- XV Mortgage Insurance and Loan Programs under the Emergency Homeowners' Relief Act, Department of Housing and Urban Development (Parts 2700—2799)
- XX Office of Assistant Secretary for Housing—Federal Housing Commissioner, Department of Housing and Urban Development (Parts 3200—3699)
- XXV Neighborhood Reinvestment Corporation (Parts 4100—4199)

Title 25—Indians

- I Bureau of Indian Affairs, Department of the Interior (Parts 1—299)
- II Indian Arts and Crafts Board, Department of the Interior (Parts 300—399)
- IV Navajo and Hopi Indian Relocation Commission (Parts 700—799)

Title 26—Internal Revenue

- I Internal Revenue Service, Department of the Treasury (Parts 1—699)

Title 27—Alcohol, Tobacco Products and Firearms

- I Bureau of Alcohol, Tobacco and Firearms, Department of the Treasury (Parts 1—299)

Title 28—Judicial Administration

- I Department of Justice (Parts 0—199)
- III Federal Prison Industries, Inc., Department of Justice (Parts 300—399)
- V Bureau of Prisons, Department of Justice (Parts 500—599)
- VI Offices of Independent Counsel, Department of Justice (Parts 600—699)
- VII Office of Independent Counsel (Parts 700—799)

Title 29—Labor

SUBTITLE A—Office of the Secretary of Labor (Parts 0—99)

SUBTITLE B—Regulations Relating to Labor

- I National Labor Relations Board (Parts 100—199)

Title 29—Labor—Continued

- Chap.
- II Bureau of Labor-Management Relations and Cooperative Programs, Department of Labor (Parts 200—299)
 - III National Railroad Adjustment Board (Parts 300—399)
 - IV Office of Labor-Management Standards, Department of Labor (Parts 400—499)
 - V Wage and Hour Division, Department of Labor (Parts 500—899)
 - IX Construction Industry Collective Bargaining Commission (Parts 900—999)
 - X National Mediation Board (Parts 1200—1299)
 - XII Federal Mediation and Conciliation Service (Parts 1400—1499)
 - XIV Equal Employment Opportunity Commission (Parts 1600—1699)
 - XXVII Occupational Safety and Health Administration, Department of Labor (Parts 1900—1999)
 - XX Occupational Safety and Health Review Commission (Parts 2200—2499)
 - XXV Pension and Welfare Benefits Administration, Department of Labor (Parts 2500—2599)
 - XXVI Pension Benefit Guaranty Corporation (Parts 2600—2699)
 - XXVII Federal Mine Safety and Health Review Commission (Parts 2700—2799)

Title 30—Mineral Resources

- I Mine Safety and Health Administration, Department of Labor (Parts 1—199)
- II Minerals Management Service, Department of the Interior (Parts 200—299)
- III Board of Surface Mining and Reclamation Appeals, Department of the Interior (Parts 300—399)
- IV Geological Survey, Department of the Interior (Parts 400—499)
- VI Bureau of Mines, Department of the Interior (Parts 600—699)
- VII Office of Surface Mining Reclamation and Enforcement, Department of the Interior (Parts 700—999)

Title 31—Money and Finance: Treasury

SUBTITLE A—Office of the Secretary of the Treasury (Parts 0—50)

SUBTITLE B—Regulations Relating to Money and Finance

- I Monetary Offices, Department of the Treasury (Parts 51—199)
- II Fiscal Service, Department of the Treasury (Parts 200—399)
- IV Secret Service, Department of the Treasury (Parts 400—499)
- V Office of Foreign Assets Control, Department of the Treasury (Parts 500—599)
- VI Bureau of Engraving and Printing, Department of the Treasury (Parts 600—699)
- VII Federal Law Enforcement Training Center, Department of the Treasury (Parts 700—799)

Title 32—National Defense

Chap.

SUBTITLE A—Department of Defense

- I Office of the Secretary of Defense (Parts 1—399)
- V Department of the Army (Parts 400—699)
- VI Department of the Navy (Parts 700—799)
- VII Department of the Air Force (Parts 800—1099)

SUBTITLE B—Other Regulations Relating to National Defense

- XII Defense Logistics Agency (Parts 1200—1299)
- XVI Selective Service System (Parts 1600—1699)
- XIX Central Intelligence Agency (Parts 1900—1999)
- XX Information Security Oversight Office (Parts 2000—2099)
- XXI National Security Council (Parts 2100—2199)
- XXIV Office of Science and Technology Policy (Parts 2400—2499)
- XXVII Office for Micronesian Status Negotiations (Parts 2700—2799)
- XXVIII Office of the Vice President of the United States (Parts 2800—2899)

Title 33—Navigation and Navigable Waters

- I Coast Guard, Department of Transportation (Parts 1—199)
- II Corps of Engineers, Department of the Army (Parts 200—399)
- IV Saint Lawrence Seaway Development Corporation, Department of Transportation (Parts 400—499)

Title 34—Education

SUBTITLE A—Office of the Secretary, Department of Education (Parts 1—99)

SUBTITLE B—Regulations of the Offices of the Department of Education

- I Office for Civil Rights, Department of Education (Parts 100—199)
- II Office of Elementary and Secondary Education, Department of Education (Parts 200—299)
- III Office of Special Education and Rehabilitative Services, Department of Education (Parts 300—399)
- IV Office of Vocational and Adult Education, Department of Education (Parts 400—499)
- V Office of Bilingual Education and Minority Languages Affairs, Department of Education (Parts 500—599)
- VI Office of Postsecondary Education, Department of Education (Parts 600—699)
- VII Office of Educational Research and Improvement, Department of Education (Parts 700—799)

Title 35—Panama Canal

Chap.

- I Panama Canal Regulations (Parts 1—299)

Title 36—Parks, Forests, and Public Property

- I National Park Service, Department of the Interior (Parts 1—199)
- II Forest Service, Department of Agriculture (Parts 200—299)
- III Corps of Engineers, Department of the Army (Parts 300—399)
- IV American Battle Monuments Commission (Parts 400—499)
- V Smithsonian Institution (Parts 500—599)
- VII Library of Congress (Parts 700—799)
- VIII Advisory Council on Historic Preservation (Parts 800—899)
- IX Pennsylvania Avenue Development Corporation (Parts 900—999)
- XI Architectural and Transportation Barriers Compliance Board (Parts 1100—1199)
- XII National Archives and Records Administration (Parts 1200—1299)

Title 37—Patents, Trademarks, and Copyrights

- I Patent and Trademark Office, Department of Commerce (Parts 1—199)
- II Copyright Office, Library of Congress (Parts 200—299)
- III Copyright Royalty Tribunal (Parts 300—399)
- IV Assistant Secretary for Productivity, Technology and Innovation, Department of Commerce (Parts 400—499)
- V Under Secretary for Economic Affairs, Department of Commerce (500—599)

Title 38—Pensions, Bonuses, and Veterans' Relief

- I Department of Veterans Affairs (Parts 0—99)

Title 39—Postal Service

- I United States Postal Service (Parts 1—999)
- III Postal Rate Commission (Parts 3000—3099)

Title 40—Protection of Environment

- I Environmental Protection Agency (Parts 1—799)
- V Council on Environmental Quality (Parts 1500—1599)

Title 41—Public Contracts and Property Management

SUBTITLE B—Other Provisions Relating to Public Contracts

- 50 Public Contracts, Department of Labor (Parts 50-1—50-999)
- 51 Committee for Purchase from the Blind and Other Severely Handicapped (Parts 51-1—51-99)

Title 41—Public Contracts and Property Management—Continued

Chap.

- 60 Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor (Parts 60-1-60-999)
- 61 Office of the Assistant Secretary for Veterans Employment and Training, Department of Labor (Parts 61-1-61-999)
- SUBTITLE C—Federal Property Management Regulations System
- 101 Federal Property Management Regulations (Parts 101-1-101-99)
- 105 General Services Administration (Parts 105-1-105-999)
- 109 Department of Energy Property Management Regulations (Parts 109-1-109-99)
- 114 Department of the Interior (Parts 114-1-114-99)
- 115 Environmental Protection Agency (Parts 115-1-115-99)
- 128 Department of Justice (Parts 128-1-128-99)
- SUBTITLE D—Other Provisions Relating to Property Management (Reserved)
- SUBTITLE E—Federal Information Resources Management Regulations System
- 201 Federal Information Resources Management Regulation (Parts 201-1-201-99)
- SUBTITLE F—Federal Travel Regulation System
- 301 Travel Allowances (Parts 301-1-301-14)
- 302 Relocation Allowances (Parts 302-1-302-12)
- 303 Payment of Expenses Connected with the Death of Certain Employees (Parts 302-1-302-2)
- 304 Reductions in Meeting and Training Allowance Payments (Parts 304-1-304-2)

Title 42—Public Health

- I Public Health Service, Department of Health and Human Services (Parts 1-199)
- IV Health Care Financing Administration, Department of Health and Human Services (Parts 400-499)
- V Office of Inspector General-Health Care, Department of Health and Human Services (Parts 1000-1999)

Title 43—Public Lands: Interior

- SUBTITLE A—Office of the Secretary of the Interior (Parts 1-199)
- SUBTITLE B—Regulations Relating to Public Lands
- I Bureau of Reclamation, Department of the Interior (Parts 200-499)
- II Bureau of Land Management, Department of the Interior (Parts 1000-9999)

Title 44—Emergency Management and Assistance

Chap.

- I Federal Emergency Management Agency (Parts 0—399)
- IV Department of Commerce and Department of Transportation (Parts 400—499)

Title 45—Public Welfare

SUBTITLE A—Department of Health and Human Services, General Administration (Parts 1—199)

SUBTITLE B—Regulations Relating to Public Welfare

- II Office of Family Assistance (Assistance Programs), Family Support Administration, Department of Health and Human Services (Parts 200—299)
- III Office of Child Support Enforcement (Child Support Enforcement Program), Family Support Administration, Department of Health and Human Services (Parts 300—399)
- IV Office of Refugee Resettlement, Family Support Administration, Department of Health and Human Services (Parts 400—499)
- V Foreign Claims Settlement Commission of the United States, Department of Justice (Parts 500—599)
- VI National Science Foundation (Parts 600—699)
- VII Commission on Civil Rights (Parts 700—799)
- VIII Office of Personnel Management (Parts 800—899)
- X Office of Community Services, Family Support Administration, Department of Health and Human Services (Parts 1000—1099)
- XI National Foundation on the Arts and the Humanities (Parts 1100—1199)
- XII ACTION (Parts 1200—1299)
- XIII Office of Human Development Services, Department of Health and Human Services (Parts 1300—1399)
- XVI Legal Services Corporation (Parts 1600—1699)
- XVII National Commission on Libraries and Information Science (Parts 1700—1799)
- XVIII Harry S. Truman Scholarship Foundation (Parts 1800—1899)
- XX Commission on the Bicentennial of the United States Constitution (Parts 2000—2099)
- XXI Commission on Fine Arts (Parts 2100—2199)
- XXII Christopher Columbus Quincentenary Jubilee Commission (2200—2299)

Title 46—Shipping

- I Coast Guard, Department of Transportation (Parts 1—199)
- II Maritime Administration, Department of Transportation (Parts 200—399)
- III Coast Guard (Great Lakes Pilotage), Department of Transportation (Parts 400—499)
- IV Federal Maritime Commission (Parts 500—599)

Title 47—Telecommunication

Chap.

- I Federal Communications Commission (Parts 0—199)
- II Office of Science and Technology Policy and National Security Council (Parts 200—299)
- III National Telecommunications and Information Administration, Department of Commerce (Parts 300—399)

Title 48—Federal Acquisition Regulations System

- 1 Federal Acquisition Regulation (Parts 1—99)
- 2 Department of Defense (Parts 200—299)
- 3 Department of Health and Human Services (Parts 300—399)
- 4 Department of Agriculture (Parts 400—499)
- 5 General Services Administration (Parts 500—599)
- 6 Department of State (Parts 600—699)
- 7 Agency for International Development (Parts 700—799)
- 8 Department of Veterans Affairs (Parts 800—899)
- 9 Department of Energy (Parts 900—999)
- 10 Department of the Treasury (Parts 1000—1099)
- 12 Department of Transportation (Parts 1200—1299)
- 13 Department of Commerce (Parts 1300—1399)
- 14 Department of the Interior (Parts 1400—1499)
- 15 Environmental Protection Agency (Parts 1500—1599)
- 16 Office of Personnel Management Federal Employees Health Benefits Acquisition Regulation (Parts 1600—1699)
- 17 Office of Personnel Management (Parts 1700—1799)
- 18 National Aeronautics and Space Administration (Parts 1800—1899)
- 19 United States Information Agency (Parts 1900—1999)
- 22 Small Business Administration (Parts 2200—2299)
- 24 Department of Housing and Urban Development (Parts 2400—2499)
- 25 National Science Foundation (Parts 2500—2599)
- 28 Department of Justice (Parts 2800—2899)
- 29 Department of Labor (Parts 2900—2999)
- 34 Department of Education Acquisition Regulation (Parts 3400—3499)
- 35 Panama Canal Commission (Parts 3500—3599)
- 44 Federal Emergency Management Agency (Parts 4400—4499)
- 51 Department of the Army Acquisition Regulations (Parts 5100—5199)
- 52 Department of the Navy Acquisition Regulations (Parts 5200—5299)
- 53 Department of the Air Force Federal Acquisition Regulation Supplement (Parts 5300—5399)
- 57 African Development Foundation (Parts 5700—5799)
- 61 General Services Administration Board of Contract Appeals (Parts 6100—6199)

Title 48—Federal Acquisition Regulations System—Continued

Chap.

- 63 Department of Transportation Board of Contract Appeals
(Parts 6300-6399)

Title 49—Transportation

SUBTITLE A—Office of the Secretary of Transportation (Parts 1-99)

SUBTITLE B—Other Regulations Relating to Transportation

- I Research and Special Programs Administration, Department of Transportation (Parts 100-199)
- II Federal Railroad Administration, Department of Transportation (Parts 200-299)
- III Federal Highway Administration, Department of Transportation (Parts 300-399)
- IV Coast Guard, Department of Transportation (Parts 400-499)
- V National Highway Traffic Safety Administration, Department of Transportation (Parts 500-599)
- VI Urban Mass Transportation Administration, Department of Transportation (Parts 600-699)
- VII National Railroad Passenger Corporation (AMTRAK) (Parts 700-799)
- VIII National Transportation Safety Board (Parts 800-899)
- X Interstate Commerce Commission (Parts 1000-1399)

Title 50—Wildlife and Fisheries

- I United States Fish and Wildlife Service, Department of the Interior (Parts 1-199)
- II National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce (Parts 200-299)
- III International Regulatory Agencies (Fishing and Whaling) (Parts 300-399)
- IV Joint Regulations (United States Fish and Wildlife Service, Department of the Interior and National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce); Endangered Species Committee Regulations (Parts 400-499)
- V Marine Mammal Commission (Parts 500-599)
- VI Fishery Conservation and Management, National Oceanic and Atmospheric Administration, Department of Commerce (Parts 600-699)

CFR Index and Finding Aids

Subject/Agency Index

List of Agency Prepared Indexes

Parallel Tables of Statutory Authorities and Rules

Acts Requiring Publication in the Federal Register

List of CFR Titles, Chapters, Subchapters, and Parts

Alphabetical List of Agencies Appearing in the CFR

(Revised as of September 14, 1990)

Agency	CFR Title, Subtitle or Chapter
ADDITION	45, XII
Administrative Committee of the Federal Register	1, I
Administrative Conference of the United States	1, III
Advisory Commission on Intergovernmental Relations	5, VII
Advisory Committee on Federal Pay	5, IV
Advisory Council on Historic Preservation	36, VIII
African Development Foundation	22, XV; 48, 57
Agency for International Development	22, II; 48, 7
Agricultural Marketing Service	7, I, IX, X, XI
Agricultural Research Service	7, V
Agricultural Stabilization and Conservation Service	7, VII
Agriculture Department	
Agricultural Marketing Service	7, I, IX, X, XI
Agricultural Research Service	7, V
Agricultural Stabilization and Conservation Service	7, VII
Animal and Plant Health Inspection Service	7, III; 9, I
Commodity Credit Corporation	7, XIV
Contract Appeals, Board of	7, XXIV
Cooperative State Research Service	7, XXXIV
Economic Analysis Staff	7, XXXIX
Economics Management Staff	7, XL
Economic Research Service	7, XXXVII
Energy, Office of	7, XXIX
Environmental Quality, Office of	7, XXXI
Farmers Home Administration	7, XVIII
Federal Acquisition Regulation	48, 4
Federal Crop Insurance Corporation	7, IV
Federal Grain Inspection Service	7, VIII
Finance and Management, Office of	7, XXX
Food and Nutrition Service	7, II
Food Safety and Inspection Service	9, III
Foreign Agricultural Service	7, XV
Foreign Economic Development Service	7, XXI
Forest Service	36, II
General Sales Manager, Office of	7, XXV
Grants and Program Systems, Office of	7, XXXII
Information Resources Management, Office of	7, XXVII
Inspector General, Office of	7, XXVI
International Cooperation and Development Office	7, XXII
National Agricultural Library	7, XLI
National Agricultural Statistics Service	7, XXXVI
Operations Office	7, XXVIII
Packers and Stockyards Administration	9, II
Rural Electrification Administration	7, XVII
Rural Telephone Bank	7, XVI
Secretary of Agriculture, Office of	7, Subtitle A
Soil Conservation Service	7, VI
Transportation, Office of	7, XXXIII
World Agriculture Outlook Board	7, XXXVIII
Air Force Department	32, VII
Federal Acquisition Regulation Supplement	48, 53

Agency	CFR Title, Subtitle or Chapter
Alaska Natural Gas Transportation System, Office of the Federal Inspector	10, XV
Alcohol, Tobacco and Firearms, Bureau of	27, I
AMTRAK	49, VII
American Battle Monuments Commission	36, IV
Animal and Plant Health Inspection Service	7, III; 9, I
Appalachian Regional Commission	5, IX
Architectural and Transportation Barriers Compliance Board	36, XI
Arms Control and Disarmament Agency, U.S.	22, VI
Army Department	32, V
Engineers, Corps of	33, II; 36, III
Federal Acquisition Regulation	48, 51
Benefits Review Board	20, VII
Bicentennial of the United States Constitution, Commission on the	45, XX
Bilingual Education and Minority Languages Affairs, Office of	34, V
Blind and Other Severely Handicapped, Committee for Purchase from	41, 51
Board for International Broadcasting	22, XIII
Budget, Office of Management and	5, III
Census Bureau	15, I
Central Intelligence Agency	32, XIX
Child Support Enforcement, Office of	45, III
Christopher Columbus Quincentenary Jubilee Commission	45, XXII
Civil Rights Commission	45, VII
Civil Rights, Office for (Education Department)	34, I
Claims Collection Standards, Federal	4, II
Coast Guard	33, I; 46, I, III; 49, IV
Commerce Department	44, IV
Census Bureau	15, I
Economic Affairs, Under Secretary	37, V
Economic Analysis, Bureau of	15, VIII
Economic Development Administration	13, III
Endangered Species Committee	50, IV
Export Administration Bureau	15, VII
Federal Acquisition Regulation	48, 13
Fishery Conservation and Management	50, VI
International Trade Administration	15, III; 19, III
National Institute of Standards and Technology	15, II
National Marine Fisheries Service	50, II, IV
National Oceanic and Atmospheric Administration	15, IX; 50, II, III, IV, VI
National Telecommunications and Information Administration	15, XXIII; 47, III
Patent and Trademark Office	37, I
Productivity, Technology and Innovation, Assistant Secretary for	37, IV
Secretary of Commerce, Office of	15, Subtitle A
Technology Administration	15, XI
United States Travel Service	15, XII
Commercial Space Transportation, Office of, Department of Transportation	14, III
Commission on the Bicentennial of the United States Constitution	45, XX
Committee for Purchase from the Blind and Other Severely Handicapped	41, 51
Commodity Credit Corporation	7, XIV
Commodity Futures Trading Commission	17, I
Community Planning and Development, Office of Assistant Secretary for	24, V, VI
Community Services, Office of	45, X
Comptroller of the Currency	12, I
Construction Industry Collective Bargaining Commission	29, IX
Consumer Product Safety Commission	16, II

Agency	CFR Title, Subtitle or Chapter
Contract Appeals, Board of	7, XXIV
Cooperative State Research Service	7, XXXIV
Copyright Office	37, II
Copyright Royalty Tribunal	37, III
Council on Environmental Quality	40, V
Customs Service, United States	19, I
Defense Department	32, Subtitle A
Department of Defense	32, VII
Department of Defense	32, V; 33, II; 36, III, 48,
Department of Defense	51
Department of Defense	33, II; 36, III
Department of Defense	48, 2
Department of Defense	32, VI; 48, 52
Department of Defense	32, I
Department of Defense, Office of	32, XII
Defense Logistics Agency	18, III
Delta River Basin Commission	21, II
Drug Enforcement Administration	15, XIII
East-West Foreign Trade Board	37, V
Economic Affairs, Under Secretary (Commerce)	15, VIII
Economic Analysis, Bureau of	7, XXXIX
Economic Analysis Staff, Department of Agriculture	13, III
Economic Development Administration	7, XL
Economics Management Staff	7, XXXVII
Economic Research Service	
Education, Department of	
Bilingual Education and Minority Languages Affairs,	
Office of	
Civil Rights, Office for	34, V
Educational Research and Improvement, Office of	34, I
Elementary and Secondary Education, Office of	34, VII
Federal Acquisition Regulation	34, II
Postsecondary Education, Office of	48, 34
Secretary of Education, Office of	34, VI
Special Education and Rehabilitative Services, Office of	34, Subtitle A
Vocational and Adult Education, Office of	34, III
Educational Research and Improvement, Office of	34, IV
Elementary and Secondary Education, Office of	34, VII
Employees' Compensation Appeals Board	34, II
Employees Loyalty Board, International Organizations	20, IV
Employment and Training Administration	5, V
Employment Standards Administration	20, V
Endangered Species Committee	20, VI
Energy, Department of	50, IV
Federal Acquisition Regulation	10, II, III, X; 41, 109
Federal Energy Regulatory Commission	48, 9
Energy, Office of, Department of Agriculture	18, I
Engineers, Corps of	7, XXIX
Engraving and Printing, Bureau of	33, II; 36, II
Environmental Protection Agency	31, VI
Environmental Quality, Office of (Agriculture Department)	40, I; 41, 115; 48, 15
Equal Employment Opportunity Commission	7, XXXI
Equal Opportunity, Office of Assistant Secretary for	29, XIV
Executive Office of the President	24, I
Administration, Office of	3, I
Export Administration Bureau	5, XV
Export-Import Bank of the United States	15, VII
Family Assistance, Office of	12, IV
Family Support Administration	45, II
Farm Credit Administration	45, II, III, IV, X
Farm Credit System Assistance Board	12, VI
Farm Credit System Insurance Corporation	12, XIII
Farmers Home Administration	12, XIV
Federal Acquisition Regulation	7, XVIII
Federal Aviation Administration	48, I
Federal Claims Collection Standards	14, I
Federal Communications Commission	4, II
	47, I

Agency	CFR Title, Subtitle or Chapter
Federal Contract Compliance Programs, Office of	41, 60
Federal Crop Insurance Corporation	7, IV
Federal Deposit Insurance Corporation	12, III
Federal Election Commission	11, I
Federal Emergency Management Agency	44, I; 48, 44
Federal Energy Regulatory Commission	18, I
Federal Financial Institutions Examination Council	12, XI
Federal Financing Bank	12, VIII
Federal Grain Inspection Service	7, VIII
Federal Highway Administration	23, I, II; 49, III
Federal Home Loan Mortgage Corporation	1, IV
Federal Housing Finance Board	12, IX
Federal Information Resources Management Regulations	41, Subtitle E, Ch. 201
Federal Inspector for the Alaska Natural Gas Transportation System, Office of	10, XV
Federal Labor Relations Authority, and General Counsel of the Federal Labor Relations Authority	5, XIV; 22, XIV
Federal Law Enforcement Training Center	31, VII
Federal Maritime Commission	46, IV
Federal Mediation and Conciliation Service	29, XII
Federal Mine Safety and Health Review Commission	29, XXVII
Federal Pay, Advisory Committee on	5, IV
Federal Prison Industries, Inc.	28, III
Federal Property Management Regulations	41, 101
Federal Property Management Regulations System	41, Subtitle C
Federal Railroad Administration	49, II
Federal Register, Administrative Committee of	1, I
Federal Register, Office of	1, II
Federal Reserve System	12, II
Federal Retirement Thrift Investment Board	5, VI
Federal Service Impasses Panel	5, XIV
Federal Trade Commission	16, I
Federal Travel Regulation System	41, Subtitle F
Finance and Management, Department of Agriculture	7, XXX
Fine Arts Commission	45, XXI
Fiscal Service	31, II
Fish and Wildlife Service, United States	50, I, IV
Fishery Conservation and Management	50, VI
Fishing and Whaling, International Regulatory Agencies	50, III
Food and Drug Administration	21, I
Food and Nutrition Service	7, II
Food Safety and Inspection Service	9, III
Foreign Agricultural Service	7, XV
Foreign Assets Control, Office of	31, V
Foreign Claims Settlement Commission of United States	45, V
Foreign Economic Development Service	7, XXI
Foreign Service Grievance Board	22, IX
Foreign Service Impasse Disputes Panel	22, XIV
Foreign Service Labor Relations Board	22, XIV
Foreign-Trade Zones Board	15, IV
Forest Service	36, II
General Accounting Office	4, I, II, III
General Sales Manager, Office of	7, XXV
General Services Administration	
Contract Appeals Board	48, 61
Federal Acquisition Regulation	48, 5
Federal Information Resources Management Regulations	41, Subtitle E, Ch. 201
Federal Property Management Regulations System	41, 101, 105
Federal Travel Regulation System	41, Subtitle F
Payment of Expenses Connected With the Death of Certain Employees	41, 303
Reduction in Meeting and Training Allowance Payments	41, 304
Relocation Allowances	41, 302
Travel Allowances	41, 301
Geological Survey	30, IV
Government Ethics, Office of	5, XVI

Agency	CFR Title, Subtitle or Chapter
Government National Mortgage Association	24, III
Systems and Program Systems, Office of	7, XXXII
Lakes Pilotage	46, III
W. S. Truman Scholarship Foundation	45, XVIII
Health and Human Services, Department of	45, Subtitle A
Child Support Enforcement, Office of	45, III
Community Services, Office of	45, X
Family Assistance, Office of	45, II
Family Support Administration	45, II, III, IV, X
Federal Acquisition Regulation	48, 3
Food and Drug Administration	21, I
Health Care Financing Administration	42, IV
Human Development Services Office	45, XIII
Inspector General, Office of	42, V
Public Health Service	42, I
Refugee Resettlement, Office of	45, IV
Social Security Administration	20, III; 45, IV
Health Care Financing Administration	42, IV
Housing and Urban Development, Department of	
Community Planning and Development, Office of Assistant Secretary for	24, V, VI
Equal Opportunity, Office of Assistant Secretary for	24, I
Federal Acquisition Regulation	48, 24
Government National Mortgage Association	24, III
Housing—Federal Housing Commissioner, Office of Assistant Secretary for	24, II, VIII, X, XX
Inspector General, Office of	24, XII
Mortgage Insurance and Loan Programs Under Emergency Homeowners' Relief Act	
Public and Indian Housing, Office of Assistant Secretary for	24, XV
Secretary, Office of	24, IX
Solar Energy and Energy Conservation Bank	24, Subtitle B, VII
Housing—Federal Housing Commissioner, Office of Assistant Secretary for	24, XI
Human Development Services Office	24, II, VIII, X, XX
Immigration and Naturalization Service	45, XIII
Indian Affairs, Bureau of	8, I
Indian Arts and Crafts Board	25, I
Information Agency, United States	25, II
Information Resources Management, Office of, Agriculture Department	22, V; 48, 19
Information Security Oversight Office	7, XXVII
Inspector General, Office of, Agriculture Department	32, XX
Inspector General, Office of, Health and Human Services Department	7, XXVI
Inspector General, Office of, Housing and Urban Development Department	42, V
Inter-American Foundation	24, XII
Intergovernmental Relations, Advisory Commission on	22, X
Interior Department	5, VII
Endangered Species Committee	50, IV
Federal Acquisition Regulation	48, 14
Federal Property Management Regulations System	41, 114
Fish and Wildlife Service, United States	50, I, IV
Geological Survey	30, IV
Indian Affairs, Bureau of	25, I
Indian Arts and Crafts Board	25, II
Land Management Bureau	43, II
Minerals Management Service	30, II
Mines, Bureau of	30, VI
National Park Service	36, I
Reclamation Bureau	43, I
Secretary of the Interior, Office of	43, Subtitle A
Surface Mining and Reclamation Appeals, Board of	30, III
Surface Mining Reclamation and Enforcement, Office of	30, VII

Agency	CFR Title, Subtitle or Chapter
United States Fish and Wildlife Service	50, I, IV
Internal Revenue Service	26, I
International Boundary and Water Commission, United States and Mexico	22, XI
International Cooperation and Development Office, Department of Agriculture	7, XXII
International Development, Agency for	22, II
International Development Cooperation Agency	22, XII
International Development, Agency for	22, II
Overseas Private Investment Corporation	22, VII
International Joint Commission, United States and Canada	22, IV
International Organizations Employees Loyalty Board	5, V
International Regulatory Agencies (Fishing and Whaling)	50, III
International Trade Administration	15, III; 19, III
International Trade Commission, United States	19, II
Interstate Commerce Commission	49, X
Japan-United States Friendship Commission	22, XVI
Joint Board for the Enrollment of Actuaries	20, VIII
Justice Department	28, I; 41, 128
Drug Enforcement Administration	21, II
Federal Acquisition Regulation	48, 28
Federal Claims Collection Standards	4, II
Federal Prison Industries, Inc.	28, III
Foreign Claims Settlement Commission of the United States	45, V
Immigration and Naturalization Service	8, I
Offices of Independent Counsel	28, VI
Prisons, Bureau of	28, V
Labor Department	
Benefits Review Board	20, VII
Employees' Compensation Appeals Board	20, IV
Employment and Training Administration	20, V
Employment Standards Administration	20, VI
Federal Acquisition Regulation	48, 29
Federal Contract Compliance Programs, Office of	41, 60
Federal Procurement Regulations System	41, 50
Labor-Management Relations and Cooperative Programs, Bureau of	29, II
Labor-Management Standards, Office of	29, IV
Mine Safety and Health Administration	30, I
Occupational Safety and Health Administration	29, XXVII
Pension and Welfare Benefits Administration	29, XXV
Public Contracts	41, 50
Secretary of Labor, Office of	29, Subtitle A
Veterans' Employment and Training, Office of the Assistant Secretary for	41, 61; 20, IX
Wage and Hour Division	29, V
Workers' Compensation Programs, Office of	20, I
Labor-Management Relations and Cooperative Programs, Bureau of	29, II
Labor-Management Standards, Office of	29, IV
Land Management, Bureau of	43, II
Legal Services Corporation	45, XVI
Library of Congress	38, VII
Copyright Office	37, II
Management and Budget, Office of	5, III
Marine Mammal Commission	50, V
Maritime Administration	46, II
Merit Systems Protection Board	5, II
Micronesian Status Negotiations, Office for	32, XXVII
Mine Safety and Health Administration	30, I
Minerals Management Service	30, II
Mines, Bureau of	30, VI
Minority Business Development Agency	15, XIV
Miscellaneous Agencies	1, IV
Monetary Offices	31, I

Agency	CFR Title, Subtitle or Chapter
Mortgage Insurance and Loan Programs Under the Emergency Homeowners' Relief Act, Department of Housing and Urban Development	24, XV
National Aeronautics and Space Administration	14, V; 48, 18
National Agricultural Library	7, XLI
National Agricultural Statistics Service	7, XXXVI
National Archives and Records Administration	36, XII
National Bureau of Standards	15, II
National Capital Planning Commission	1, IV
National Commission for Employment Policy	1, IV
National Commission on Libraries and Information Science	45, XVII
National Credit Union Administration	12, VII
National Foundation on the Arts and the Humanities	45, XI
National Highway Traffic Safety Administration	23, II, III; 49, V
National Institute of Standards and Technology	15, II
National Labor Relations Board	29, I
National Marine Fisheries Service	50, II, IV
National Mediation Board	29, X
National Oceanic and Atmospheric Administration	15, IX; 50, II, III, IV, VI
National Park Service	36, I
National Railroad Adjustment Board	29, III
National Railroad Passenger Corporation (AMTRAK)	49, VII
National Science Foundation	45, VI; 48, 25
National Security Council	32, XXI
National Security Council and Office of Science and Technology Policy	47, II
National Telecommunications and Information Administration	15, XXIII; 47, III
National Transportation Safety Board	49, VIII
Navajo and Hopi Indian Relocation Commission	25, IV
Navy Department	32, VI; 48, 52
Neighborhood Reinvestment Corporation	24, XXV
Nuclear Regulatory Commission	10, I
Occupational Safety and Health Administration	29, XVII
Occupational Safety and Health Review Commission	29, XX
Office of Independent Counsel	28, VII
Offices of Independent Counsel, Department of Justice	28, VI
Operations Office, Department of Agriculture	7, XXVIII
Overseas Private Investment Corporation	22, VII
Oversight Board	12, XV
Packers and Stockyards Administration	9, II
Panama Canal Commission	48, 35
Panama Canal Regulations	35, I
Patent and Trademark Office	37, I
Payment of Expenses Connected With the Death of Certain Employees	41, 303
Peace Corps	22, III
Pennsylvania Avenue Development Corporation	36, IX
Pension and Welfare Benefits Administration, Department of Labor	29, XXV
Pension Benefit Guaranty Corporation	29, XXVI
Personnel Management, Office of	5, I; 45, VIII; 48, 17
Federal Employees Health Benefits Acquisition Regulation	48, 16
Postal Rate Commission	39, III
Postal Service, United States	39, I
Postsecondary Education, Office of	34, VI
President's Commission on White House Fellowships	1, IV
Presidential Documents	3
Prisons, Bureau of	28, V
Productivity, Technology and Innovation, Assistant Secretary (Commerce)	37, IV
Property Management Regulations System, Federal	41, Subtitle C
Public Contracts, Department of Labor	41, 50
Public Health Service	42, I
Railroad Retirement Board	20, II

Agency	CFR Title, Subtitle or Chapter
Reclamation Bureau	43, I
Reduction in Meeting and Training Allowance Payments	41, 304
Refugee Resettlement, Office of	45, IV
Regional Action Planning Commissions	13, V
Relocation Allowances	41, 302
Research and Special Programs Administration	49, I
Resolution Trust Corporation	12, XVI
Rural Electrification Administration	7, XVII
Rural Telephone Bank	7, XVI
Saint Lawrence Seaway Development Corporation	33, IV
Science and Technology Policy, Office of	32, XXIV
Science and Technology Policy, Office of, and National Security Council	47, II
Secret Service	31, IV
Securities and Exchange Commission	17, II
Selective Service System	32, XVI
Small Business Administration	13, I; 48, 22
Smithsonian Institution	36, V
Social Security Administration	20, III; 45, IV
Soil Conservation Service	7, VI
Solar Energy and Energy Conservation Bank, Department of Housing and Urban Development	24, XI
Soldiers' and Airmen's Home, United States	5, XI
Special Counsel, Office of	5, VIII
Special Education and Rehabilitative Services, Office of State Department	34, III
Federal Acquisition Regulation	22, I
Surface Mining and Reclamation Appeals, Board of	48, 6
Susquehanna River Basin Commission	30, III
Technology Administration	18, VIII
Tennessee Valley Authority	15, XI
Thrift Supervision Office, Department of the Treasury	18, XIII
Trade Representative, United States, Office of	12, V
Transportation, Department of	15, XX
Coast Guard	44, IV
Commercial Space Transportation, Office of	33, I; 46, I, III; 49, IV
Contract Appeals Board	14, III
Federal Acquisition Regulation	48, 63
Federal Aviation Administration	48, 12
Federal Highway Administration	14, I
Federal Railroad Administration	23, I, II; 49, III
Maritime Administration	49, II
National Highway Traffic Safety Administration	46, II
Research and Special Programs Administration	23, II, III; 49, V
Saint Lawrence Seaway Development Corporation	49, I
Secretary of Transportation, Office of	33, IV
Urban Mass Transportation Administration	14, II; 49, Subtitle A
Transportation, Office of, Department of Agriculture	49, VI
Travel Allowance	7, XXXIII
Travel Service, United States	41, 301
Treasury Department	15, XII
Alcohol, Tobacco and Firearms, Bureau of	17, IV
Comptroller of the Currency	27, I
Customs Service, United States	12, I
Engraving and Printing, Bureau of	19, I
Federal Acquisition Regulation	31, VI
Federal Law Enforcement Training Center	48, 10
Fiscal Service	31, VII
Foreign Assets Control, Office of	31, II
Internal Revenue Service	31, V
Monetary Offices	26, I
Secret Service	31, I
Secretary of the Treasury, Office of	31, IV
Thrift Supervision Office	31, Subtitle A
United States Customs Service	12, V
Truman, Harry S. Scholarship Foundation	19, I
	45, XVIII

Agency	CFR Title, Subtitle or Chapter
United States and Canada, International Joint Commission	22, IV
United States Arms Control and Disarmament Agency	22, VI
United States Customs Service	19, I
United States Fish and Wildlife Service	50, I, IV
United States Information Agency	22, V; 48, 19
United States International Development Cooperation Agency	22, XII
United States International Trade Commission	19, II
United States Postal Service	39, I
United States Soldiers' and Airmen's Home	5, XI
United States Trade Representative, Office of	15, XX
United States Travel Service	15, XII
Urban Mass Transportation Administration	49, VI
Veterans Affairs Department	38, I; 48, 8
Veterans' Employment and Training, Office of the Assistant Secretary for	41, 61; 20, IX
Vice President of the United States, Office of	32, XXVIII
Vocational and Adult Education, Office of	34, IV
Wage and Hour Division	29, V
Water Resources Council	18, VI
Workers' Compensation Programs, Office of	20, I
World Agriculture Outlook Board	7, XXXVIII

Redesignation Tables

At 48 FR 50996, Nov. 4, 1983, the Coast Guard established Subchapter S containing subdivision and stability regulations for merchant vessels. Subchapter S regulations were transferred in part from various places throughout Title 46 and Title 33. For the convenience of the user, the following Derivation Table and Distribution Table II show the relationship of the old regulations in Subchapter S. Distribution Table I shows where certain old stability rules not contained in Subchapter S are being transferred. Abbreviations of referenced materials used in the tables below include: NVC for Navigation and Vessel Inspection Circular, MSM for Marine Safety Manual, MMTN for Merchant Marine Technical Note, and IMO Res. for International Maritime Organization Resolution. Numerical references are to regulations in Title 46 unless otherwise noted.

DERIVATION TABLE

New regulation	Old regulation	Other old regulations containing the same or similar requirement
170.001		31.10-30(a), 73.01-1, 74.01, 107.01, 107.111, 93.01-1, 167.20-5, 167.20-20, 168.05-5, 178.01, 179.01, 191.01, 153.806(a), 153.15, 153.16, 154.1, 73.90, 74.90, 93.07-90, 33 CFR 157.01.
170.005	30.01-10	179.15-1, 91.45.
170.010	108.105	30.15-1, 175.15, 90.15, 70.15, 188.15, 108.335(c), 153.10, 154.8, 33 CFR 157.07.
170.015	New	
170.050:	New	
(a)		
(b)		30.10-17, 70.10-9, 90.10-7, 151.03-15, 153.1, 175.10-5, 107.111, 167.05-10, 188.10-19.
(c)	178.05-15	
(d)	90.05-10(b)	30.10-33, 30.10-6(b), 151.03-29, 70.05-10(b), 70.10-17, 175.10-11, 188.10-31, 93.20-1.
(e)	90.10-19	30.10-41, 70.10-23, 151.03-33, 175.10-17, 188.10-39.
(f)	175.10-25	30.10-45, 70.10-31, 151.03-39, 90.10-25, 188.10-51.
(g)	90.10-27	30.10-47, 70.10-33, 151.03-41, 175.10-26, 188.10-55.

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
(h)	33 CFR 157.03	
(i)	178.05-17	
(j)	178.05-19	
(k)	175.10-33	70.10-39, 90.10-3, 151.03-45, 188.61, 30.10-61.
170.055:		
(a)	175.10-38	
(b)	90.10-2	30.10-65, 70.10-2, 151.03-7, 175.123, 188.10-5.
(c)	33CFR 157.03	73.05-4, 153.4, 191.05-4.
(d)	178.05-1	73.05-5, 191.05-5.
(e)	108.301(c)	
(f)	108.301(d)	
(g)	73.05-7	191.05-7.
(h)		42.13-5, 73.05-3, 153.2, 154.3, 175.10-19, 191.3, 33 CFR 157.03.
(i)	33 CFR 157.03	30.10-38, 31.10-30(f)(1).
(j)	New	
(k)	73.05-8	33 CFR 157.03, 154.3, 153.30(a), 191.05-8.
(l)	175.10-36	70.10-42.
(m)	New	
(n)	30.10-69	
(o)	30.10.65	
(p)	30.10-67	
(q)		70.10-45, 90.10-3, 151.03-55.
(r)	(New)	
170.070	107.301	31.10-5(a), 71.65, 189.55-1, 91.55, 167.20-25, 188.5, 179.01-1.

Redesignation Tables

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
170.075: (a)(1)	107.305(b)	71.65-5(a)(2), 167.20-25(a)(1) and (c), 177.05- 1(a)(4), 189.55- 5(a), 91.55-5(a)(2), 168.05-5, 31.10- 5(a), 33 CFR 157.24(b), 154.4, 153.8
(a)(2)	107.305(q)	71.65-5(c)(1), 167.20-25(a)(3) and (c), 177.05- 3(a)(1), 189.55- 5(c)(1), 91.55- 5(c)(1), 168.05-5, 31.10-5(a) 33, CFR 157.24(b), 154.4, 153.8
(a)(3)	107.305(r)	71.65-5(c)(2), 167.20-25(a)(4) and (c), 177.05- 3(a)(2), 189.55- 5(c)(2), 91.55- 5(c)(2), 168.05-5, 31.10-5(a) 33, CFR 157.24(b), 154.4, 153.8
(a)(4)	107.305(s)	71.65-5(c)(5), 167.20-25(b) and (c), 177.05-3(a)(3), 189.55-5(c)(3), 91.55-5(c)(3), 168.05-5, 31.10- 5(a) 33 CFR 157.24(b), 154.4, 153.8
(a)(5)	107.305(t)	71.65-5(c)(6), 167.20-25(b) and (c), 189.55-5(c)(4), 91.55-5(c)(4), 168.05-5, 31.10- 5(a), 33 CFR 157.24(b), 154.4, 153.8
(a)(6)	107.305(u)	71.65-5(c)(7), 167.20-25(b) and (c), 189.55-5(c)(5), 91.55-5(c)(5), 168.05-5, 31.10- 5(a), 33 CFR 157.24(b), 154.4, 153.8
(b)	177.05-1	
170.080	107.305(w)	177.05-3(b), 191.30- 1(b), 168.05-5, 31.10-5(b), 74.20- 1(b), 93.10-1(a)
170.085	108.337	93.05-5(a) and (b), 74.05-5(a) and (b), 191.15-5(a), 153.806, 154.205(a), 167.20- 25(b), 168.05-5, 31.10-30(b)(2).

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
170.090		177.05-3(b), (d), and (e), 71.65-5(c)(3) and (4), 167.20- 25(b), 168.05-5, 31.10-5(a), 107.305(u-1), 191.20-15(b)(8), 108.329, 108.313, 91.55-5(c), 33 CFR 157.24(b)
170.093	New	
170.095	MMTN 3-69	
170.100	107.317	71.65-15, 177.05- 1(a), 177.05-3(a)- 189.55-15, 91.55- 20, 167.20-25(c), 168.05-5
170.105	179.01-1	
170.110: (a)	109.121(a)	74.20-1(a), 74.20- 15(a) and (b), 93.10-1(a), 154.1809(a), 153.806(b), 191.30- 1(a), 154.205(a), 153.806(a), 168.05- 5, 31.10-30(b)(4), 167.20-20, 191.30- 15
(b)	109.121(b)	74.20-1(b), 93.10- 1(a), 191.30-1(b), 154.205(a), 31.10- 30(b)(4), 168.05-5, 167.20-20, 153.806(a)
(c) and (d)	109.121(d)	74.20-1(a), 74.20- 15(a), 154.1809(b), 191.30-15(a), 154.205(a), 168.05- 5, 31.10-30(b)(4), 167.20-20, 153.806(a), 74.20- 5, 93.10-1(a) and (b), 154.1809(c), 191.30-1(a), 153.806(b), 74.20- 10, 191.30-10
(e)	New	
170.120: (a)	74.25-1	31.10-30(b)(5), 179.20(a) and (b), 191.35-1, 191.35- 5, 154.205(a), 31.10-30(b)(4), 168.05-5, 153.806(a), 167.20- 20, 93.15-1, 93.15- 5
(b)	New	
170.125	MMTN 3-69	
170.135:		
(a)	109.121(d)(6)	
(b)	109.121(d)(6)	
170.130:		
(a)	74.12-11	
(b)	74.12-7	
(c)	74.12-3	

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
170.160		31.10-30(a)(1), 74.01-1, 179.01-1, 93.01-1, 93.07-1, 153.806, 154.205(a), 167.20-20, 168.05-5, 191.20-5, MMTN 3-69.
170.170:		
(a)	74.10-5	31.10-30(b)(3), 93.07-10, 153.806(a), 154.205(a), 167.20-20, 168.05-5, 179.10-5, 191.20-5.
(b)	74.10-5	31.10-30(b)(3), 93.07-10, 153.806(a), 154.205(a), 167.20-20, 168.05-5, 179.10-5, 191.20-5.
(c)	MMTN 3-68	
(d)	74.10-11	31.10-30(b)(3), 93.07-15, 153.806(a), 167.20-20, 168.05-5, 179.10-5, 191.20-10.
170.173	New	NVC 3-73, IMO Res. A469(XII).
170.174		93.05-1(a), 74.05-1(a), 167.20-20, 31.10-30(b)(1), 168.05-5, 179.05-1, 191.15-1, 154.205(a), 153.806, 93.01-1, 108.335.
170.175:		
(a)	108.335(a)	93.05-1(a), 74.05-1(a), 191.15-1(a), 153.806, 154.205(a), 167.20-20, 168.05-5, 31.10-30(b)(1), 179.10-3.
(b)	108.335(b)	93.05-1(a), 74.05-1(a), 191.15-1(a), 153.806, 154.205(a), 167.20-20, 168.05-5, 31.10-30(b)(1), 179.10-3.
(c)	108.338(c)	93.05-1(b), 74.05-1(b), 191.15-1(b), 153.806, 154.205(a), 167.20-20, 168.05-5, 31.10-30(b)(1), 179.10-3.
(d)	93.05-1	

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
170.180	74.05-(a)&(b)	93.05-5(a) and (b), 108.337, 153.806, 191.15-5(a), 154.205(a), 168.05-5, 167.20-25(a), 31.10-30(b)(1), 179.10-3, 179.10-5, 189.55-5(c).
170.185:		
(a)	108.339(a)	93.05-5(c)(3), 74.05-5(c)(3), 191.15-5(b)(3), 153.806, 154.205(a), 167.20-20, 168.05-5, 31.10-30(b)(2), 179.10-3, 179.10-5.
(b)	108.339(b)	93.05-5(c)(2), 74.05-5(c)(2), 191.15-5(b)(2), 153.806, 154.205(a), 167.20-20, 168.05-5, 31.10-30(b)(2), 179.10-3, 179.10-5.
(c)	108.339(c)	93.05-5(c)(4), 74.05-5(c)(4), 191.15(b)(4), 153.806, 154.205(a), 167.20-20, 168.05-5, 31.10-30(b)(2), 179.10-3, 179.10-5.
(d)	108.339(d)	93.05-5(c)(5), 74.05-5(c)(5), 191.15-5(b)(5), 153.806, 154.205(a), 167.20-20, 168.05-5, 31.10-30(b)(2), 179.10-3.
(e)	108.339(e)	93.05-5(c)(5), 74.05-5(c)(5), 191.15-5(b)(5), 153.806, 154.205(a), 167.20-20, 168.05-5, 31.10-30(b)(2), 179.10-3.
(f)	108.339(f)	
(g)	108.339(g)	
170.190	108.341	93.05-5(c)(1), 74.05-5(c)(1), 191.15-5(b)(1), 153.806, 154.205(a), 167.20-20, 168.05-5, 31.10-30(b)(2), 179.10-3, 179.10-5.
170.200		31.10-30(c) through (f).
170.235	74.15-5	168.05-5, 191.25-93.13-5, 109.58, 153.806(a), 154.205(a), 167.30.
170.245	MMTN 4-67	179.10-1.
170.248	New	

Redesignation Tables

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
170.250:		
(a).....	73.35-1(a).....	167.20-5, 168.05-5, 191.10-25(b)
(b).....	73.35-1(a).....	167.20-5, 168.05-5, 191.10-25(b)
(c).....	73.35-1(b).....	167.20-5, 168.05-5
(d).....	73.35-17.....	
170.255:		
(a).....	73.35-5(a).....	167.20-5, 168.05-5, 191.10-25(c)
(b).....	73.35-5(b).....	167.20-5, 168.05-5
(c).....	New.....	
170.260:		
(a).....	73.35-10(a).....	167.20-5, 168.05-5, 191.10-25(d)(1)
(b).....	73.35-10(b), 73.35-10(c).....	167.20-5, 168.05-5, 191.10-25(d)(2)
(c).....	73.35-10(b).....	167.20-5, 168.05-5, 191.10-25(d)(2)
(d).....	73.35-10(b).....	167.20-5, 168.05-5, 191.10-25(d)(2)
170.265:		
(a).....	73.35-15(a).....	167.20-5, 168.05-5
(b).....	73.35-15(b).....	167.20-5, 168.05-5, 191.10-25(e)
(c).....	73.35-15(c).....	167.20-5, 168.05-5, 191.10-25(e)
(d).....	73.35-15(d).....	167.20-5, 168.05-5
170.270:		
(a).....	73.35-20(a).....	167.20-5, 168.05-5
(b).....	73.35-30(b).....	167.20-5, 168.05-5, 191.10-25(f)(2)
(c).....	73.35-30(c).....	167.20-5, 168.05-5, 191.10-25(f)(3)
(d).....	73.35-25(a).....	167.20-5, 168.05-5, 191.10-25(f)(3)
170.275:		
(a).....	73.35-17(a).....	167.20-5, 168.05-5
(b).....	73.35-17(b).....	167.20-5, 168.05-5
(c).....	73.35-17(a).....	167.20-5, 168.05-5
170.285.....	154.225.....	31.10-30(b)(3), 151.10-15(b), 153.31, 74.10-1, 167.20-20, 168.05-5, 191.20-1, 93.07-5, 93.20-05(c)
170.290.....	154.225.....	31.10(b)(3), 151.10-15(b), 153.31, 74.10-1, 167.20-20, 168.05-5, 191.20-1, 93.07-5, 33 CFR 157, App. B, paragraphs 4 (d) & (e), 93.20-05(c)
170.295.....	MMTN 2-69.....	
170.001.....	New.....	
171.010:		
(a).....	178.05-9.....	
(b).....	73.05-2.....	191.05-2
(c).....	New.....	
(d).....		70.10-15, 175.10-9
(e).....	73.05-12.....	
(f).....	178.05-7.....	
(g).....	70.05-10.....	
(h).....	73.05-10.....	
(i).....	178.05-13.....	
(j).....	73.05-11.....	
(k).....	New.....	
(l).....	70.10-43.....	

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
(m).....	New.....	
(n).....	178.05-11.....	
171.015:		
(a).....	73.05-6(a).....	167.20-5, 168.05-5, 191.05-6(b)
(b).....	73.05-6(b).....	167.20-5, 168.05-5, 191.05-6(a)
(c).....	73.05-6(a).....	167.20-5, 168.05-5, 191.05-6(a)
(d).....	73.05-6(a).....	167.20-5, 168.05-5, 191.05-6(a)
171.017.....	178.10-1.....	
171.020.....		175.05-5(a), 178.01-1, 178.10-1, 178.10-5, 178.10-10, 179.01-1
171.030:		
(a).....		179.05, 179.10-3(a)
(b).....		179.10-1(a), 179.10-1(b), 179.10-1(c)
(c).....		179.10-1(d), 179.10-1(e)
(d).....		179.10-1(f), 179.10-1(g)
(e).....	179.10-1(f)-(g).....	
(f).....	179.10-1(f).....	
(g).....	179.10-1(h).....	
(h).....	179.10-1(f).....	
171.035.....	MMTN 3-68.....	
171.040:		
(a).....		178.10-1(a), 178.10-1(b), 178.20-1(b)
(b).....		178.10-5(a), 178.10-5(b), 178.10-10
(c).....	178.25-1(b).....	
(d).....	178.15-5.....	
171.043:		
(a).....	178.20-1(a).....	
(b).....	178.20-1(a).....	
171.045.....		175.05-5(a) & (b), 178.01-1, 178.10-1, 178.20-5, 179.01-1, 70.05-1(a), 73.01-1, 74.01-1, 73.10-1
171.050.....	74.10-10.....	179.10-5
171.055.....	MMTN 3-68.....	
171.057.....	MMTN 1-69.....	
171.060:		
(a).....		73.10-1(a), 73.10-2, 73.12-1, 74.10-2
(b).....		178.20-5, 73.15 (title)
(c).....		73.20-1(a), 178.10-1(a)
(d).....	73.20-1(a).....	178.15-15
171.065:		
(a).....		73.10-10, 73.10-15, 73.10-20
(b).....	73.10-23.....	
(c).....	73.10-30(a).....	
(d).....	73.10-35.....	
(e).....	73.10-55.....	
(f).....	73.10-60.....	
(g).....	73.10-60.....	
(h).....	73.10-60.....	
(i).....	New.....	
(j).....	New.....	

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
171.066:		
(a)		73.10-5(a), 73.10-5(b)(1), 73.10-5(c)(1), 73.10-30(b).
(b)	73.10-5(b)(2)	
(c)	73.10-5(d)	
(d)	73.10-5(e)	
171.067:		
(a)	New	
(b)	73.10-40	
(c)	73.10-45	
(d)	73.10-45	
(e)	73.10-55	
(f)	73.10-50	
171.068:		
(a)		73.10-65(a), 73.10-65(b)(1) and (2), 73.10-1(b).
(b)		73.10-65(b)(2)(i).
(c)		73.10-65(b)(2)(ii).
171.070:		
(a)	73.15-5(b)-(f)	
(b)	73.15-10(a)-(c)	
(c)	73.15-10(a)	
(d)	73.15-10(a)	
(e)	73.15-15, New	178.20-5(b)
(f)	73.15-15	178.20-5(b)
171.072:	73.15-1	
171.073:		
(a)	73.15-20	
(b)		73.15-25(a) and (b).
(c)	73.15-30	
171.075:		
(a)	73.12-5	
(b)	73.12-7	
(c)	73.12-3	
171.080:		
(a)		74.10-15(a) and (b), 179.10-5.
(b)	74.10-15(c)(4)	179.10-5
(c)	74.10-15(c)(3)	179.10-5
(d)	74.10-15(c)(7)	179.10-5
(e)	74.10-15(c)(5)	179.10-5
171.082:		
(a)	74.10-2	74.12-1, 74.12-5.
(b)	74.12-7	
(c)	74.12-3	
(d)	74.12-9	
171.085:		
(a)	New	
(b)	73.20-1(a)	
(c)	73.20-1(a)	
(d)	73.20-1(a)	
(e)	73.20-1(b)	
(f)	73.20-1(b)	
(g)	73.20-1(c)	73.30-15(a)(1).
(h)	178.15-3	
(i)	178.15-3	
(j)	178.15-1	
171.090:		73.20-10, 178.15-5.
171.095:	73.20-5	
171.100:		
(a)	73.20-15	
(b)	73.30-25(b)	
(c)	73.30-25(b)	
(d)	73.30-25(b)	
171.105:		
(a)	73.25-1	

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
(b)	73.25-5(b)	
(c)	73.25-5(c)	
(d)	73.25-5(d)	
(e)	73.25-5(e)	
(f)	73.25-5(e)	
(g)	73.25-5(f)	
(h)	73.25-5(g)	
171.106:	73.25-10	
171.108:	73.25-15	
171.109:	73.25-20	
171.110:	New	
171.111:		
(a)	73.30-1	
(b)	73.30-35	
(c)	73.30-1	
(d)	73.30-10	
(e)	73.30-5	
(f)	73.30-40	
(g)	73.30-40	
(h)	73.30-15(a)(2)	
171.112:		
(a)	73.30-25(a)	
(b)	73.30-25(b)	
171.113:		
(a)	New	
(b)	73.30-30(b)	
(c)	73.30-30(a)	
171.114:		
(a)	178.25-1(c)	
(b)	178.25-1(d)	
(c)	178.25-1(b)	
171.115:	New	
171.116:		
(a)	73.40-5(a)	
(b)	73.40-5(b)(1)	
(c)	73.40-5(b)(1)	
(d)	73.40-5(b)(3)	
(e)	73.40-5(b)(4)	
(f)		
171.117:		
(a)	73.40-5(c)(1)	
(b)	73.40-5(c)(1)	
(c)	73.40-5(c)(1)	
(d)	73.40-5(c)(2)	
171.118:		
(a)	73.40-10	
(b)	73.40-15	
(c)	73.40-15	
171.119:		
(a)		178.40-1(b) and (c).
(b)	178.40-1(d)	
(c)	178.40-1(e)	
(d)	178.40-1(e)	
(e)	178.40-1(d)	
(f)	178.40-1(d)	
171.120:	New	
171.122:		
(a)	New	
(b)	73.45-5(a)	
(c)	73.45-1(a)	
(d)	73.45-1(b)	
(e)	73.45-1(b)	
(f)	73.45-5(b)	
(g)	73.45-10(b)	
171.124:		
(a)		178.35-1(a), (b), and (c).
(b)	178.35-1(d)	

Redesignation Tables

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
(c).....	178.35-1(e).....	
(d).....	178.35-1(f).....	
(e).....	178.35-1(f)(1).....	
171.130	New	
171.135	73.45-5(c).....	
171.140	178.30-1.....	
171.145:		
(a).....	178.30-3(a).....	
(b).....	178.30-3(b).....	
(c).....	178.30-3(b).....	
(d).....	178.30-3(c).....	
(e).....	178.30-3(d).....	
(f).....	178.30-3(d).....	
171.150:		
(a).....	178.30-5(a).....	
(b).....		178.30-5(b), (c), and (d).
(c).....	178.30-5(b).....	
(d).....	178.30-5(b).....	
171.155	178.30-7.....	
172.005		93.20-01, 30.25-1-151.01-10(b), 153.5, 154.2, 153.806(a), 154.205(a), 33 CFR 157.08.
172.047	32.63-1.....	
172.050:		
(a).....	32.63-5.....	
(b).....	32.63-15(b).....	
(c).....	32.63-15(b).....	
(d).....	32.63-15(b).....	
(e).....	32.63-15, New	
(f).....	New	
172.060		33 CFR 157.01, 157.08, 157.21.
172.065:		
(a).....	33 CFR 157.03(a).....	
(b).....	33 CFR 157.21.....	
(c).....		33 CFR 157—Appendix B—para. (2).
(d).....		33 CFR 157—Appendix B—para. (3)(a), para. (3)(c), and para. (3)(d).
(e).....		33 CFR 157—Appendix B—para. (3)(b).
(f).....		33 CFR 157—Appendix B—para. (4)(a)-(b).
(g)(1).....	33 CFR 157.21(a).....	
(g)(2).....	33 CFR 157.21(b).....	
(g)(3).....	33 CFR 157.21(c).....	
(g)(4).....		33 CFR 157—Appendix B—para. (3)(e).
(h).....		33 CFR 157—Appendix B—para. (4)(c).
172.080	151.01-10.....	
172.085	New	
172.087	151.10-15(b).....	
172.090:		
(a).....	151.10-5(a).....	
(b).....	151.10-5(b).....	
(c).....	151.10-5(b).....	
(d).....	151.10-5(a).....	

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
172.095	151.10-6.....	
172.100:		
(a).....		151.10-10(a)(1).
(b).....		151.10-10(a)(1).
(c).....		151.10-10(a)(1).
172.103	New	
172.104:		
(a).....		151.10-10(a)(2).
(b).....		151.10-10(a)(2).
(c).....		151.10-10(a)(3).
172.105:		
(a)(1).....		151.10-10(b)(2).
(a)(2).....		151.10-10(b)(1).
(a)(3).....	New	
(b).....		151.10-10(b)(3).
172.110:		
(a).....	New	
(b).....	New	
(c).....		151.10-10(c)(1).
(d).....		151.10-10(c)(1).
(e).....		151.10-10(c)(2).
(f).....		151.10-10(c)(2).
(g).....		151.10-10(c)(2).
(h).....		151.10-10(c)(2).
(i).....		151.10-10(c)(2).
172.125	153.1.....	
172.127	153.2.....	
172.130:		
(a).....		153.15, 153.16, 153.20 through 22.
(b).....	153.5.....	
172.133:		
(a).....	153.20.....	
(b).....	153.21.....	
(c).....	153.22.....	
(d).....	153.32(c).....	
172.135:		
(a).....	153.32(a).....	
(b).....	153.32(a).....	
172.140:		
(a).....	153.30(b).....	
(b).....	153.30(b).....	
(c).....	153.30(c).....	
172.150:		
(a).....	153.34(b).....	
(b).....	153.34(a).....	
(c).....	153.34(c).....	
(d).....	153.34(f).....	
(e).....	153.34(e).....	
(f).....	153.34(d).....	
(g).....	153.34(g).....	
(h).....	153.34(h).....	
172.155		154.1, 154.2.
172.160:		
(a).....	154.3.....	
(b).....	154.3.....	
172.165	154.205(b).....	
172.170:		
(a).....	154.210(a).....	
(b).....	154.210(b).....	
172.175:		
(a).....	154.215(a).....	
(b).....	154.215(b).....	
(c).....	154.215(c).....	
(d).....	154.215(d).....	
(e).....	154.215(e).....	
(f).....	154.215(e).....	
172.180:		
(a).....	154.220(a).....	

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
(b)	154.220(b)	
172.185:		
(a)	154.225(d)	
(b)	154.225(c)	
(c)	154.225(e)	
172.195:		
(a)	154.230(b)	
(b)	154.230(a)	
(c)	154.230(c)	
(d)	154.230(h)	
(e)	154.230(e)	
(f)	154.230(d)	
(g)	154.230(g)	
(h)	154.230(h)	
172.205	154.230(f)	
173.001	New	
173.005	New	
173.007 through 173.025	MMTN 3-69	
173.050	167.20-5	
173.055	167.20-5	
173.060	168.05-5	
173.070		191.01-1, 188.05-1
173.075:		
(a)		191.10-1, 191.10-5, 191.10-10, 191.10-13
(b)	191.10-15	
173.080		191.20-15(a), (b)(1)-(7), and (c).
173.085:		191.10-15(a), 191.10-20(e).
(a)		
(b)	191.10-16	
(c)	191.10-17	
(d)	191.10-18	
(e)	191.10-19	
(f)		191.10-20(a)-(c) and (f).
(g)	191.10-20(g)	
(h)		191.10-20(b)(2).
(i)	191.10-30(b)	
(j)		191.10-30(c)(2).
(k)		191.10-30(c)(1).
(l)	191.10-30(d)	
(m)	191.10-35	
(n)		191.10-35(b)(2).
(o)	191.10-20(d)	
173.090	65-4-C MSM	
173.095	65-4-C MSM	
174.005		93.07-15, 107.01.
174.010 through 174.020	MMTN 3-69	
174.030	107.01	
174.035:		
(a)	107.111	
(b)	108.301	
174.040	108.303	
174.045:		
(a)	108.305(a)	
(b)	108.305(b)	
(c)	108.305(c)	
(d)	108.305(d)	
174.050	108.309	
174.055:		
(a)	108.311(a)	
(b)	108.311(b)	

DERIVATION TABLE—Continued

New regulation	Old regulation	Other old regulations containing the same or similar requirement
(c)	108.311(c)	
174.065:		
(a)	108.315(a)	
(b)	108.315(b)	
174.070:		
(a)	108.317(a)	
(b)	108.317(b)	
174.075	108.319	
174.080:		
(a)	108.321(a)	
(b)	108.321(b)	
174.085:		
(a)	108.323(a)	
(b)	108.323(b)	
174.090	108.325	
174.100		108.114, 108.115
174.110	79.01-1	37.01-1, 99.01-1
174.115	79.05-5(a)	37.05-5(a), 99.05-5(a).
174.120	79.05-5(a)	37.05-5(a), 99.05-5(a).
174.125	79.05-5(a)-(b)	37.05-5(a)-(b), 99.05-5(a)-(b).
174.140	65-4-C MSM	
174.145	65-4-C MSM	
174.150	106.400(a)	
174.155	106.400(a)	
174.160	106.400(b)	
174.165	106.403	
174.170	106.405	

DISTRIBUTION TABLE I

Old rule	New location in 46 CFR
73.35-20(d)	163.001-4.
73.40-5(b)(4)	78.16-1.
74.10-12	72.30-5.
74.25-1(a)	78.12-1.
93.15-1	97.11-1.
179.20-1	185.12-1.
191.25-10	196.18-1.
191.35-1	196.12-1.

DISTRIBUTION TABLE II

Old regulation	New regulation
31.10-30:	
(a)(1)	170.160, 170.001
(a)(2)	170.001
(b)(1)	170.175, 170.174
(b)(2)	170.085, 170.185, 170.190
(b)(3)	170.170
(b)(4)	170.110, 170.120
(b)(5)	170.120
(c)	170.200
(d)	170.200
(e)	170.200
(f)(1)	170.055(f).
(f)(2)	170.200
32.63-1	172.047, 172.050
32.63-15	172.047, 172.050
37.05-5	174.110-174.125

Redesignation Tables

DISTRIBUTION TABLE II—Continued

Old regulation	New regulation
71 65-5	170.075, 170.090
73 01-1	170.001, 171.045
73 05-1	Deleted—unnecessary
73 05-2	171.010(b)
73 05-3	170.055(h)(1)
73 05-4	170.055(c)
73 05-5	170.055(d)
73 05-6	171.015
73 05-7	171.055(g)
73 05-8	170.055(k)
73 05-9	Deleted—unnecessary
73 05-10	171.010(h)
73 05-11	171.010(j)
73 05-12	171.010(e)
73 10-1	
(a)	171.045, 171.060
(b)	171.068
73 10-2	171.060
73 10-3	Deleted—unnecessary
73 10-5	171.066
73 10-10	171.065(a)
73 10-15	171.065 (a) and (b)
73 10-20	171.065 (a) and (b)
73 10-23	171.065(b)
73 10-25	171.015(d)
73 10-30	
(a)	171.065(c)
(b)	171.066(a)
73 10-35	171.065(d)
73 10-40	171.067(b)
73 10-45	171.067 (b) and (c)
73 10-50	171.067(f)
73 10-55	171.065(e), 171.067(e)
73 10-60	171.065(i)
73 10-65	171.068
73 12-1	171.060
73 12-3	171.075(c)
73 12-5	171.075(a)
73 12-7	171.075(b), 170.015
73 12-9	Deleted—unnecessary
73 15-1	171.072
73 15-5	
(a)	Deleted—unnecessary
(b)-(f)	171.070(a)
73 15-10	171.070(b)-(d)
73 15-15	171.070(e)
73 15-20	171.073(a)
73 15-25	171.073(b)
73 15-30	171.073(c)
73 20-1	171.085
73 20-5	171.095
73 20-10	171.090
73 20-15	171.100(a)
73 25-1	171.105(a)
73 25-5	
(a)	Deleted—unnecessary
(b)	171.105(b)
(c)	171.105(c)
(d)	171.105(d)
(e)	171.105 (e) and (f)
(f)	171.105(g)
(g)	171.105(h)
73 25-10	171.108
73 25-15	171.108
73 25-20	171.109
73 30-1	171.111(c)
73 30-5	171.111(e)
73 30-10	171.111(d)
73 30-15	171.111(h), 171.085(g)
73 30-20	Deleted—unnecessary

DISTRIBUTION TABLE II—Continued

Old regulation	New regulation
73 30-25	
(a)	171.112(a)
(b)	171.112(b)
73 30-30	171.113 (b) and (c)
73 30-35	171.111(b)
73 30-40	171.111 (f) and (g)
73 35-1	170.250
73 35-5	170.255
73 35-10	170.260
73 35-15	170.265
73 35-17	170.275
73 35-20(a)	170.270(a)
73 35-20(b)-(c)	Deleted—repetitious
73 35-25(a)	170.270(d)
73 35-25(b)	Deleted—repetitious (see Table I)
73 35-30(a)	Deleted—unnecessary
73 35-30 (b) and (c)	170.270
73 40-1	Deleted—unnecessary
73 40-5	
(a) and (b)	171.116
(c)	171.117
73 40-10	171.118(a)
73 40-15	171.118 (b) and (c)
73 40-20	Deleted—unnecessary
73 45-1	171.122(c)-(e)
73 45-5	
(a)	171.122(b)
(b)	171.122(f)
(c)	171.135
73 45-10	171.122(g)
73 90	170.001(b)
74 01-1	170.001, 171.045
74 05-1	170.175
74 05-5	
(a) and (b)	170.180, 170.065
(c)	170.185, 170.190
74 10-1	170.020
74 10-2	171.060
74 10-5	170.170
74 10-10	171.050
74 10-11	170.170(d)
74 10-15	
(a)	171.080(a)
(b)(1)	171.080(a)
(b)(2)	Deleted—unnecessary
(c)(1)	Deleted—unnecessary
(c)(2)	Deleted—unnecessary
(c)(3)	171.080(c)
(c)(4)	171.080(b)
(c)(5)	171.080(e)
(c)(6)	171.080(d)
(c)(7)	171.080(d)
(c)(8)	171.080(d)
(c)(9)	171.080(d)
(d)(1)	Deleted—unnecessary
(d)(2)	Deleted—unnecessary
74 10-20	Deleted—unnecessary
74 12-1	171.060
74 12-3	171.082(c)
74 12-5	171.082(a)
74 12-7	171.082(b)
74 12-9	171.082(d)
74 12-11	170.135(a)
74 15-1	Deleted—unnecessary
74 15-5	170.235
74 20-1	170.110
74 20-5	170.110
74 20-10	170.110
74 20-15	170.110
74 25-1	170.120

DISTRIBUTION TABLE II—Continued

Old regulation	New regulation
74.90-1	170.001(b)
79.05-5	174.110-174.125
91.55-5(c)	170.075
93.01-1	170.001
93.05-1	170.175
93.05-5	170.180, 170.185
93.07-1	170.180
93.07-5	170.020
93.07.10	170.170
93.07-15	170.170
93.07-90	170.001(b)
93.10-1	170.110
93.13-1	Deleted—unnecessary
93.13-5	170.235
93.15-5	170.120
99.05-5	174.110-174.125
106.400	174.150, 174.155, 174.160
106.403	174.165
106.405	174.170
107.305	170.075, 170.090
108.114	174.100
108.115	174.100
108.301	174.035(b), 170.055(c)-(d)
108.303	174.040
108.305	174.045
108.309	174.050
108.311	174.055
108.313	170.090
108.315	174.065
108.317	174.070
108.319	174.075
108.321	174.080
108.323	174.085
108.325	174.090
108.329	170.090
108.335	170.174, 170.175
108.337	170.180
108.339	170.185
108.341	170.190
108.343	170.005
109.121	170.110, 170.130
109.581	170.235
151.10-5	172.090
151.10-6	172.095
151.10-10	
(i)	172.100, 172.104
(b)	172.105
(c)	172.110
151.10-15	
(a)	Deleted—unnecessary
(b)	172.087
153.20	172.130, 172.133(a)
153.21	172.130, 172.133(b)
153.22	172.130, 172.133(c)
153.30	170.055(k), 172.140
153.31	170.285, 170.290
153.32(a)	172.135
153.32(b)	Deleted—unnecessary
153.32(c)	172.133(d)
153.34	172.150
153.35	Deleted—unnecessary
153.806(a)	170.001, 170.085, 170.110, 170.120, 170.160, 170.170, 170.175, 170.180, 170.185, 170.235, 172.005, 172.015, 172.030
153.806(b)	170.110
154.200	170.020

DISTRIBUTION TABLE II—Continued

Old regulation	New regulation
154.205(a)	170.001, 170.085, 170.110, 170.120, 170.160, 170.170, 170.175, 170.180, 170.185, 170.235, 172.005, 172.015, 172.030
154.205(b)	172.165
154.210	172.170
154.215	172.175
154.220	172.180
154.225	
(a) and (b)	170.285
(c)-(e)	172.185
154.230	172.195
154.1809	170.110
167.20-5	173.050, 173.055
167.20-20	170.110, 170.120, 170.170, 170.180, 170.174, 170.175, 170.185, 170.190
167.20-25(a)	170.180
167.20-25 (b) and (c)	170.070, 170.075, 170.080, 170.085, 170.090, 170.100
167.20-30	170.235
167.20-35	Deleted—unnecessary
168.05-5	173.080, 170.070, 170.075, 170.080, 170.085, 170.090, 170.100, 170.110, 170.120, 170.160, 170.170, 170.174, 170.175, 170.180, 170.185, 170.190, 170.235, 170.250, 170.255, 170.260, 170.265, 170.270, 170.285, 170.290
175.05-5	171.020, 171.045
177.05-3	170.075, 170.090
178.10-1	171.017, 171.045, 171.040
178.10-5	171.040
178.10-10	171.040
178.15-1	171.085
178.15-3 (a)-(b)	171.085
178.15-5	171.090
178.20-1	171.040, 171.043
178.20-5	171.060
178.25-1	171.114
178.30-1	171.140
178.30-3	171.145
178.30-5	171.150
178.30-7	171.155
178.35	171.124
178.40-1	171.119
179.05-1	170.174, 171.030
179.10-1	171.030
179.10-3	171.030, 170.175, 170.180, 170.185, 170.190
179.10-5	170.170, 170.180, 170.185, 170.190, 171.050, 171.080
179.15-1	170.005
179.20-5	170.120
189.55-5(c)	170.180
191.01-1	173.070
191.05-1	Deleted—unnecessary
191.05-2	171.010(b)
191.05-3	170.055(h)
191.05-4	170.055(c)
191.05-5	170.055(d)
191.05-6	171.015
191.05-7	171.055(g)
191.05-8	170.055(i)
191.10-1	173.075
191.10-5	173.075
191.10-10	173.075
191.10-13	173.075
191.10-15	173.075, 173.080, 173.085

Redesignation Tables

DISTRIBUTION TABLE II—Continued

Old regulation	New regulation
191.10-16.....	173.085(b).
191.10-17.....	173.085(c).
191.10-18.....	173.085(d).
191.10-19.....	173.085(e).
191.10-20.....	173.085(f)-(h).
191.10-25.....	170.250, 170.255, 170.260, 170.265, 170.270.
191.10-30.....	173.085(i).
191.10-35.....	173.085 (m) and (n).
191.15-1.....	170.174, 170.175.
191.15-5(a).....	170.180.
191.15-5(b).....	170.185.
191.20-1.....	170.020.
191.20-5.....	170.160, 170.170.
191.20-10.....	170.170(d).

DISTRIBUTION TABLE II—Continued

Old regulation	New regulation
191.20-15.....	173.080.
191.20-20.....	Deleted—unnecessary.
191.25-1.....	Deleted—unnecessary.
191.25-5.....	170.235.
191.30-1.....	170.110.
191.30-5.....	170.110.
191.30-10.....	170.110.
191.30-15.....	170.110.
191.35-5.....	170.120.
33 CFR	
157.21(a).....	172.060, 172.065.
157.24(b).....	170.090.
157.24(d).....	170.075.
Appendix B.....	172.060, 172.065.

List of CFR Sections Affected

All changes in this volume of the Code of Federal Regulations which were made by documents published in the FEDERAL REGISTER since January 1, 1973, are enumerated in the following list. Entries indicate the nature of the changes effected. Page numbers refer to FEDERAL REGISTER pages. The user should consult the entries for chapters and parts as well as sections for revisions.

For the period before January 1, 1973, see the "List of CFR Sections Affected, 1949-1963 and 1964-1972," published in three volumes.

1973

46 CFR	38 FR Page
Chapter I	
166.01 (b) revised.....	29320
182.15-40 (a)(3) revised.....	17230
182.20-40 (a)(2)(ii) revised.....	17230
184.15-5 (d) revised.....	1000
187.10-15 (c) amended.....	5860
188.05-10 Revised.....	29320
188.05-37 Removed.....	29321
190.20-25 (b)(3) removed.....	20449
195.35-5 (c) revised.....	33475

1974

46 CFR	30 FR Page
Chapter I	
167.35-72 Added.....	10139
167.55-5 (j)(1) amended.....	10139
167.65-1 (c)(3) added.....	10140
170 Removed.....	33316
178.20-1 (b) revised.....	33799
178.20-5 Revised.....	33799
180.05-1 (b)(10) added.....	10140
180.40-1 (Subpart 180-40) Added.....	10140
184.15-5 (b) and (c) removed; (d) revised.....	3270
185.25-20 Added.....	10140
185.30-30 Added.....	10140
191.25-10 (b) revised.....	18768
192.65-1 (Subpart 192.65) Added.....	10140
196.15-65 Added.....	10140
196.37-49 Added.....	10140
196.75-1 Revised.....	18768

1975

46 CFR	40 FR Page
Chapter I	
167.35-2 (e) added.....	58454
167.55-5 (j)(2) note revised.....	58454
176.25-20 (d) added.....	58454
176.25-22 (e) added.....	58455
181.20-15 (d) revised.....	6208
192.10-5 (b)(2) revised.....	58455
193.05-5 (b) revised.....	48349
193.10-5 (a) and (c) amended; (i) added.....	48349
193.10-10 (k)(4) revised; eff. 11- 1-76.....	43152
193.10-15 (c) amended.....	48349
193.15-10 (h) revised.....	6209
196.19-1 (Subpart 196.19) Added.....	2689

1976

46 CFR	41 FR Page
Chapter I	
167.45-5 (g) revised; eff. 11-1- 76.....	43152
167.60-15 Revised.....	19647
181.15-10 (d) revised; eff. 11-1- 76.....	43152
190.07-5 (c) amended.....	17910

1977

46 CFR	42 FR Page
Chapter I	
167.40-20 Amended.....	5964
167.40-40 Added.....	5964

46 CFR (10-1-90 Edition)

46 CFR—Continued

Chapter I—Continued	42 FR Page
167.40-45 Added.....	5964
167.65-3 Revised.....	56332
167.65-35 Added.....	5964
167.65-45 (d) revised.....	5964
175.05-1 (a) table amended; eff. 12-27-77.....	49027
(g) removed.....	63643
182.15-30 (b) amended.....	48880
182.20-22 (a) revised; (a-1) added.....	63175
182.20-30 (b) amended.....	48880
184.15-10 (a) designation re- moved; text amended.....	56332
184.25-1 (c) added.....	5964
185.15-3 Removed.....	63643
185.20-30 Added.....	5964
185.20-35 Added.....	5964
187.10-15 (c) amended.....	29483
188.05-1 (a) table amended; eff. 12-27-77.....	49027
195.13-1 (b) added.....	5964
195.17-1 (Subpart 195.17) Added.....	5965
195.19-1 (Subpart 195.19) Added.....	5965
195.20-1 Revised; authority cita- tion added.....	35797
Corrected.....	51607
195.20-15 (a) designated re- moved; text amended.....	56332
195.27-1 Amended.....	5965
195.35-10 (b) amended.....	5965
196.05-5 Revised.....	5965
196.07-13 Removed.....	63643

1978

46 CFR

Chapter I	43 FR Page
176.01-45 Added.....	30771
188.05-1 (a) table correctly amended; footnotes 10, 11, and 12 added.....	968
189.55-15 (a)(3)(i) and (ii) re- vised; (a)(3)(v) added.....	46546
197 (Subchapter V and Part) Added.....	53683

1979

46 CFR

Chapter I	44 FR Page
167.35-5 (c) and (d) added.....	38788
167.45-5 (c)(1) revised; (h) added.....	2394

46 CFR—Continued

Chapter I—Continued	44 FR Page
167.45-40 (c) revised; (c-1) and (c-2) added.....	2394
167.65-1 (c)(4) and (5) added.....	38788
176.25-25 (c) revised.....	13492
180.25-20 Added.....	38788
180.25-25 Added.....	38788
181.30-12 Added.....	34133
187.05-15 (a) revised.....	72131
189.25-20 (a)(1) table footnote 1 and (2) table footnote 1 re- vised.....	13492
192.40-20 Added.....	38789
192.40-25 Added.....	38789
193.10 (d) and (i) revised; (i-1) and (i-2) added.....	2394
193.10-90 (a)(2) revised; (a)(4) and (5) added.....	2394
193.50-20 Added.....	34133
196.15-70 Added.....	38789

1980

46 CFR

Chapter I	45 FR Page
167 Incorporation by reference approvals.....	64816, 72464, 86672
167.35-80 (c) revised.....	64188
167.45-5 (c) (1) and (h) compli- ance date postponed in part to 2-12-81.....	22040
167.45-40 (c), (c-1), and (c-2) compliance date postponed in part to 2-12-81.....	22040
167.65-65 (a) and (b) revised; in- terim.....	77443
175.05 (b)(2) revised.....	64189
175.05-2 Added.....	69244
175.10-40 Added.....	69244
175.35-1 (Subpart 175.35) Added.....	69244
176.35-5 Nomenclature change.....	64586
180.05-1 (b)(8) revised.....	64188
180.15-5 (d) revised.....	64188
180.15-10 (b) removed.....	64188
180.30-1 Revised.....	64188
181 Incorporation by reference approvals.....	64816, 72464
182 Incorporation by reference approvals.....	64816, 72464
183 Incorporation by reference approvals.....	64816, 72464, 86672

List of CFR Sections Affected

45 CFR—Continued

Chapter I—Continued	45 FR Page
185.15-1—185.15-25 (Subpart 185.15) Revised; interim.....	77444
185.25-1 (c) and (d) added.....	11110
(d) correctly designated.....	13736
188 Incorporation by reference approvals.....	64816
188.05-10 Nomenclature change.....	64586
188.10-35 Nomenclature change.....	64586
189 Incorporation by reference approvals.....	64816
189.25-15 (b) added.....	24487
(b) effective date corrected.....	29588
190 Incorporation by reference approvals.....	64816
192 Incorporation by reference approvals.....	64816
192.20-25 (c) revised.....	64187
192.20-35 (e) revised.....	64188
192.41-1—192.41-10 (Subpart 192.41) Added.....	24487
Effective date corrected.....	29588
192.41-5 (d) introductory text corrected.....	29588
192.43-5 (b) revised.....	64188
193 Incorporation by reference approvals.....	64816, 72464
193.10-90 (a) (2), (4), and (5) compliance date postponed in part 2-12-81.....	22040
194 Incorporation by reference approvals.....	64816, 72464
195 Incorporation by reference approvals.....	64816
196.07-1 (a) revised; interim.....	77444
196.07-5 Revised; interim.....	77445
196.15-37 Added.....	24487
Effective date corrected.....	29588
196.37-43 Heading and (a) revised.....	24487
Heading and (a) effective date corrected.....	29588
196.90-1—196.90-10 (Subpart 196.90) Added.....	24487
Effective date corrected.....	29588

1981

46 CFR

Chapter I

Chapter I	46 FR Page
167 Incorporation by reference approvals.....	19660, 47951
Incorporation by reference approvals corrected.....	63478

46 CFR—Continued

Chapter I—Continued	46 FR Page
167.65-65 (a) and (b) effective date confirmed.....	49877
185.15-1—185.15-25 (Subpart 185.15) Effective date confirmed.....	49877
188-196 (Subchapter U) Heading amended.....	56204
181 Incorporation by reference approvals.....	19660, 47952
182 Incorporation by reference approvals.....	47952
183 Incorporation by reference approvals.....	47952
188 Incorporation by reference approvals.....	47952
188.01-1 Revised.....	56204
188.01-3 (a) amended.....	56204
188.01-10 Amended.....	56204
188.05-1 (a) table amended.....	56204
188.05-2 Heading, (a), and (b) amended.....	56204
188.05-3 (b) and (c) amended.....	56204
188.05-5 Amended.....	56204
188.05-33 (a) amended.....	56204
188.10-49 Revised.....	56204
188.10-53 Revised.....	56204
188.10-67 Amended.....	56204
188.10-71 Amended.....	56204
188.10-77 Amended.....	56204
189 Incorporation by reference approvals.....	47952
189.50-1 (a) and (b) amended.....	56204
189.60-45 (a) amended.....	56204
190 Incorporation by reference approvals.....	47952
192 Incorporation by reference approvals.....	47952
192.10-10 (d) revised.....	28169
193 Incorporation by reference approvals.....	19660, 47952
Incorporation by reference approvals corrected.....	63478
194 Incorporation by reference approvals.....	19660
195 Incorporation by reference approvals.....	47952
196.07-1 (a) effective date confirmed.....	49877
196.07-5 Effective date confirmed.....	49877
197 Incorporation by reference approvals.....	47952
Incorporation by reference approvals corrected.....	63478

46 CFR (10-1-90 Edition)

46 CFR	1982	47 FR Page
Chapter I		
167.65-65 (c) revised; interim.....	35747	
(f) added; eff. 9-20-83.....	39685	
175.07-1 Authority citation		
amended.....	5724	
177.35-1 Authority citation		
amended.....	5724	
180 Authority citation.....	10559	
180.05-1 (b)(7) revised.....	10559	
180.15-5 (c) revised; eff. 9-20-83.....	41379	
180.20-1 Revised; eff. 9-20-83.....	41379	
180.30-1 (a) revised.....	10559	
185.15-1 (g) added; eff. 10-12-82.....	39685	
185.15-10 Revised; interim.....	35748	
187.01-5 Added.....	28679	
188.01-10 (a) amended.....	5723	
189.55-15 (a)(3)(i) revised;		
(a)(3)(v) removed.....	24555	
190.20-45 (b) removed.....	15279	
191 Authority citation.....	5724	
192 Authority citation.....	10559	
192.15-10 (d) and (e) revised; eff. 9-20-83.....	41379	
192.20-35 (d) revised; eff. 9-20-83.....	41380	
192.30-15 (a) amended.....	15279	
192.43-5 (a) revised.....	10559	
192.50-10 Revised.....	15279	
192.50-15 Revised.....	15279	
196.07-1 (c) added; eff. 10-12-82.....	39685	
196.07-10 Revised.....	35748	
196.37-5 Revised; interim.....	15279	
197.486 (a) revised; interim.....	35748	

46 CFR	1983	48 FR Page
Chapter I		
167.20-5 Removed.....	51010	
167.20-7 Added.....	51010	
167.20-20 Removed.....	51010	
167.20-25 Removed.....	51010	
167.20-30 Removed.....	51010	
167.40-10 Removed.....	654	
167.40-15 Removed.....	654	
167.65-65 (a)(6) revised.....	15126	
(c) added (final).....	43328	
168.05-10 Added.....	51010	
170-174 (Subchapter S)		
Added.....	51010	
170 Added.....	51010	

46 CFR—Continued	48 FR Page
Chapter I—Continued	
171 Added.....	51017
172 Added.....	51040
173 Added.....	51045
174 Added.....	51048
175.10-35 Removed.....	654
177.05-3 Revised.....	51052
177.13-1 (Subpart 177.13)	
Added.....	51052
178 Removed.....	51052
179 Removed.....	51052
182.15-40 (a)(3) amended.....	4783
182.20-40 (a)(2)(ii) amended.....	4783
184.15-1-184.15-10 (Subpart 184.15)	
Removed.....	654
185.12-1 (Subpart 185.12)	
Added.....	51052
185.15-1 (f) revised.....	15127
185.15-10 Revised (final).....	43328
185.20-5 Removed.....	654
188.10-63 Removed.....	654
189.20-15 (a) amended.....	654
189.25-10 (a) amended.....	655
189.55-5 (c) revised.....	51052
189.55-15 (a)(2) amended.....	4783
(a)(3)(iii) removed; (a)(3)(i), (ii), and (iv) revised.....	31649
190.03-1 (Subpart 190.03)	
Added.....	51053
191 Removed.....	51053
194.10-30 (a) footnote 1 removed.....	4783
195.20-1-195.20-15 (Subpart 195.20)	
Removed.....	654
196.07-1 (a)(6) revised.....	15127
196.07-10 Revised (final).....	43328
196.12-1 (Subpart 196.12)	
Added.....	51053
196.18-1 (Subpart 196.18)	
Added.....	51053
197.486 (a) revised (final).....	43328

46 CFR	1984	49 FR Page
Chapter I		
167.35-72 (b) introductory text revised; (c) added.....	4040	
167.65-1 (c)(3) revised.....	4040	
170.170 Correction.....	3738	
175.01-3 Added.....	3812	
180.40-1 (b) introductory text revised; (c) added.....	4040	
185.25.20 Revised.....	4041	
188 Authority citation.....	2545	

List of CFR Sections Affected

40 FR	Page
Chapter I—Continued	
8.10-56 Added.....	25455
9 Authority citation.....	25455
9.20-15 (a) amended.....	25455
9.25-10 (a) amended.....	25455
12 Authority citation.....	25455, 50726
12.40-5 (b) removed (regulations transferred to 192.42-5).....	4487
12.40-20 (b) removed (regulations transferred to 192.42-1).....	4487
12.41-1 Revised.....	4487
Revised.....	50726
12.42-1—192.42-5 (Subpart 192.42) Added.....	4488
12.50-5 (b)(2) removed.....	25455
12.65-1 (b) introductory text revised; (c) added.....	40410
15 Authority citation.....	25455
15.40-1 (Subpart 195.40) Added.....	25455
16 Authority citation.....	25455
16.15-37 Revised.....	4488
16.15-65 Revised.....	40410
16.90-1 Revised.....	4488
16.95-1 (Subpart 196.95) Added.....	25455

1985

50 FR	Page
Chapter I	
170 Authority citation.....	1525
171 Authority citation.....	1525
172 Authority citation.....	1525
173 Authority citation.....	1525
174 Authority citation.....	1525

1986

51 FR	Page
Chapter I	
167 Authority citation revised; section authority citations removed.....	4351
167.43-5 Revised.....	4351
167.43-25 Added.....	4351
139 Added.....	896
Table of contents corrected.....	3785
169.107 (d) corrected.....	3785
169.311 (a) corrected.....	3785
169.555 (b) corrected.....	10632
169.567 (a) Table 169.567(a) corrected.....	3785

51 FR	Page
Chapter I—Continued	
169.681 (c) corrected.....	10632
170 Authority citation revised.....	923, 33059
Authority citation revised; section authority citations removed.....	15498
170.055 (h)(6), (s), and (t) added.....	923
(s) corrected.....	3785
(k) through (r) redesignated as (l) through (s); new (k) added; eff. 11-17-86.....	33059
(k) through (t) correctly redesignated as (l) through (u); new (k) added.....	35515
170.070 (b)(5) added.....	923
170.100 (b) revised.....	15498
170.105 (b)(5) added.....	923
170.160 (b)(4) added.....	923
170.245 (b) introductory text revised.....	923
170.255 (d) and (e) added; eff. 11-17-86.....	33059
171 Authority citation revised.....	923
171.001 (b) revised.....	923
171.035 (a)(5) added.....	924
171.055 (d)(2) amended.....	924
171.057 (a) introductory text and (b) introductory text revised.....	924
172 Authority citation revised.....	33059
172.005 (g) added; eff. 11-17-86.....	33059
172.215—172.245 (Subpart H) Added; eff. 11-17-86.....	33059
172.220 (b)(2) corrected.....	35515
173 Authority citation revised.....	924
173.051 Redesignated from 173.055.....	924
173.052 Redesignated from 173.060.....	924
173.053 Added.....	924
173.054 Added.....	924
173.055 Redesignated as 173.051; new 173.055 added.....	924
173.056—173.059 Added.....	924
173.060 Redesignated as 173.052; new 173.060 added.....	924
173.061—173.063 Added.....	925
189 Authority citation revised; section authority citations removed.....	15498
189.55-15 (a)(3) revised.....	15498

46 CFR (10-1-90 Edition)

46 CFR—Continued

Chapter I—Continued	51 FR Page
196 Authority citation revised; section authority citations re- moved.....	4352
196.34-5 Revised.....	4352
196.34-25 Added.....	4352

1987

46 CFR

Chapter I	52 FR Page
167 Authority citation revised; section authority citations re- moved.....	39655
167.15-27 Added.....	39655
167.15-30 Revised.....	39655
167.15-35 Added.....	39655
167.15-40 Added.....	39655
167.15-50 Revised.....	39655
167.65-65 Revised.....	47536
169.229 Revised.....	39656
169.231 Revised.....	39656
169.233 Revised.....	39656
169.234 Added.....	39656
170 Authority citation revised.....	6979
170.110 (a) revised.....	6979
170.130 Removed.....	6979
172 Authority citation revised.....	7799
172.130 (a) revised.....	7799
172.133 (b) introductory text and (d) revised.....	7799
174 Authority citation revised; subpart authority citations removed.....	6979
174.045 (d) revised.....	6979
175 Authority citation revised; section authority citations re- moved.....	38657
175.01-1 (a) revised; interim.....	38657
175.10-13 Revised; interim.....	38657
175.10-15 Added; interim.....	38657
185 Authority citation revised; subpart and section authority citations removed.....	38657
Authority citation revised; sec- tion authority citations re- moved.....	47536
185.10-1 Revised; interim.....	38657
185.15-1 (Subpart 185.15) Re- vised.....	47536
185.17-1 Revised; interim.....	38657
185.19-1 Revised; interim.....	38657
185.20-1 Revised; interim.....	38657
185.20-10 Revised; interim.....	38657
185.20-15 Revised; interim.....	38657
185.20-20 Revised; interim.....	38657

46 CFR—Continued

Chapter I—Continued	52 FR Page
185.20-30 (c) revised; interim.....	38657
185.22-1 Revised; interim.....	38657
185.25-1 (a) and (d) amended; interim.....	38658
185.25-10 Revised; interim.....	38658
185.25-15 Revised; interim.....	38658
185.25-20 Revised; interim.....	38658
186 Removed; interim.....	38658
187 Removed; interim.....	38658
189 Authority citation revised; section authority citations re- moved.....	39656
189.40-1 Revised.....	39656
189.40-3 Added.....	39656
189.40-5 Revised.....	39657
189.43-1 (Subpart 189.43) Added.....	39657
190 Authority citation revised; section authority citations re- moved.....	18364
190.07-10 (f) added.....	18364
(f) corrected.....	22751
195 Authority citation revised; section and subpart authority citations removed.....	18364
195.13-1 (Subpart 195.13) Re- moved.....	18364
195.15-1 (Subpart 195.15) Re- moved.....	18364
196.07 Subpart heading re- vised.....	47536
196.07-1 (Subpart 196.07) Re- vised.....	47536
197 Authority citation revised.....	47536
197.488 (d) added.....	47536

1988

46 CFR

Chapter I	53 FR Page
166 Authority citation revised; section authority citations re- moved.....	37568
167 Authority citation revised.....	7752
	32232, 37568
167.01-20 Added.....	34298
167.15-27 (a) amended.....	32232
167.15-30 (a)(2) amended.....	32232
167.15-40 Heading revised; (a) amended.....	32232
167.45-1 Heading and (a)(8) re- vised.....	7752
167.65-50 Revised.....	27688
168 Authority citation revised.....	37568

List of CFR Sections Affected

46 CFR—Continued

Chapter I—Continued

169 Authority citation revised...32232,
37568

169.117 Existing text designated
as (a); table designated as (b);
new (b) heading added; new
(b) table amended.....34298

169.229 (a)(2) amended.....32232

169.231 (a) amended.....32232

169.234 Heading revised; (a)
amended.....32232

170 Authority citation revised....37569

170.010 Amended.....34537

170.015 (a) amended.....34537

170.050 (a) amended.....34537

170.080 Amended.....34537

170.085 Amended.....34537

170.093 Amended.....34537

170.110 (b) amended.....34537

170.170 (b) and (d) amended.....34537

170.185 (b) amended.....34537

170.235 (b) amended.....34537

170.275 (c) amended.....34537

171 Authority citation revised....37569

171.035 (h) amended.....34537

171.066 (b) introductory text,
(4), and (c) amended.....34537

171.068 (b) introductory text
and (c) amended.....34537

171.080 (c), (d)(1)(ii), (e)(1)(i),
and (3) amended.....34537

171.090 (c) amended.....34537

171.105 (g)(2) and (h)(1) amend-
ed.....34537

171.116 (f)(1) amended.....34537

171.118 (a) and (b) amended.....34537

172 Authority citation revised....37569

172.150 (b)(2) amended.....34537

173 Authority citation revised....37569

174 Authority citation revised....37569

175 Authority citation revised;
section authority citations re-
moved.....36026, 37569

175.05-1 (a) table amended.....36026

(a) table corrected.....46871

176 Authority citation revised.....7752

Authority citation revised; sec-
tion authority citations re-
moved.....36026, 37569

176.25-25 (c) introductory text
revised; (c)(3) Note amend-
ed.....7752

177 Authority citation revised;
section authority citations re-
moved.....37569

46 CFR—Continued

Chapter I—Continued

180 Authority citation revised;
section authority citations re-
moved.....37569

181 Authority citation revised.....7752

Authority citation revised; sec-
tion authority citations re-
moved.....37569

181.20-30 (c) revised.....7752

182 Authority citation revised;
section authority citations re-
moved.....37569

183 Authority citation revised....37569

184 Authority citation revised;
section authority citations re-
moved.....37569

185 Authority citation correctly
revised.....13118

Authority citation revised; sec-
tion authority citations re-
moved.....37569

188 Authority citation revised;
section authority citations re-
moved.....36026, 37569

188.01-7 Added.....50382

188.01-10 Removed.....36026

188.01-15 Added.....34298

188.05-1 (a) table amended.....36026

(a) table corrected.....46871

188.05-2 (b) revised.....36026

188.05-15 (c) revised.....36026

188.10-3 Amended.....36026

188.10-21 Amended.....36026

188.10-25 Amended.....36026

188.10-33 Amended.....34538

188.10-37 Revised.....36026

188.10-73 Amended.....36026

188.35-5 (a) and (b) amended.....34538

(a) corrected.....37570, 44011

189 Authority citation revised...7752,
37569

189.25-20 (a)(1) table footnote 1
and (2) table footnote 1 re-
vised; (a)(2) table Note re-
moved.....7752

189.40-1 (a) and (c) amended.....32232

189.40-3 (a)(2) amended.....32232

189.43 (Subpart 189.43) Heading
revised.....32233

189.43-1 (a) amended.....32233

189.55-15 (a)(2) and (3) amend-
ed.....34538

190 Interpretation.....32050

Authority citation revised.....37569

46 CFR—Continued

Chapter I—Continued

	53 FR Page
192 Authority citation revised; section authority citations re- moved.....	37569
192.01-3 Added.....	17706
192.20-15 (j) revised.....	17706
193 Authority citation revised.....	7752
Authority citation revised; sec- tion authority citations re- moved.....	37569
193.15-20 (i) revised.....	7753
194 Heading and authority cita- tion revised; section authority citations removed.....	36026
Authority citation revised; sec- tion authority citations re- moved.....	37569
194.01-1 (c) amended.....	36026
194.05-1 (b) revised.....	36027
194.05-3 Revised.....	36027
194.05-5 (a) amended.....	36027
194.05-7 (a), (b), and (c)(1) re- vised.....	36027
194.05-9 (b) amended.....	36027
(b) corrected.....	46872
194.05-11 (b) amended.....	36027
(b) corrected.....	46872
194.05-13 (b) amended.....	36027
194.05-15 (b) amended.....	36027
194.05-17 (b) amended.....	36027
194.05-19 (b) amended.....	36027
194.05-21 Revised.....	36027
194.10-1 (b) amended.....	36027
194.10-5 (b)(2) revised.....	36027
194.10-35 (e) amended.....	36027
194.15-15 Revised.....	36027
194.15-17 (a) amended.....	36027
194.20-15 (d) and (f) amended.....	36027
194.20-17 (b) and (c) revised.....	36027
195 Authority citation revised.....	17706, 20624, 36027, 37570
195.01-3 Added.....	17706
195.07-05 (b) and (c) added.....	20624
195.11-30 (c) revised.....	36027
195.35-5 (c) revised.....	17706
196 Authority citation revised.....	37570
196.43-5 (a) amended; (b) re- moved.....	27688
197 Authority citation correctly revised.....	13118
Authority citation revised.....	37570

46 CFR

1989

Chapter I

167.10-50 Revised.....	5038
168.05-15 Added.....	5038
169.113 Revised.....	5038
170.003 Added.....	5038
170.010 Revised.....	1957
170.100 (b) revised.....	1957
170.110 (d)(16) added; eff. 10-6- 89.....	3697
170.248 (a) amended; (c) added; eff. 10-6-89.....	3697
170.300 Added; eff. 10-6-89.....	3697
174.005 (f) added; eff. 10-6-89.....	3697
174.300-174.340 (Subpart I) Added; eff. 10-6-89.....	3697
175.01-1 Regulations at 52 FR 38657 confirmed.....	13
175.10-13 Regulations at 52 FR 38657 confirmed.....	13
175.10-15 Regulations at 52 FR 38657 confirmed.....	13
175.30-1 Revised.....	5038
184.01-3 Added; interim.....	640
184.01-4 Added (OMB number); interim.....	640
184.05-1 (b) revised; (d) added; interim.....	640
185.10-1 Regulations at 52 FR 38657 confirmed.....	13
185.17-1 Regulations at 52 FR 38657 confirmed.....	13
185.19-1 Regulations at 52 FR 38657 confirmed.....	13
185.20-1 Regulations at 52 FR 38657 confirmed.....	13
185.20-10 Regulations at 52 FR 38657 confirmed.....	13
185.20-15 Regulations at 52 FR 38657 confirmed.....	13
185.20-20 Regulations at 52 FR 38657 confirmed.....	13
185.20-30 Regulations at 52 FR 38657 confirmed.....	13
185.22-1 Regulations at 52 FR 38657 confirmed.....	13
185.25-1 Regulations at 52 FR 38658 confirmed.....	13
185.25-10 Regulations at 52 FR 38658 confirmed.....	13
185.25-15 Regulations at 52 FR 38658 confirmed.....	13
185.25-20 Regulations at 52 FR 38658 confirmed.....	13
(b) revised.....	15

List of CFR Sections Affected

46 CFR—Continued	54 FR Page
Chapter I—Continued	
186 Removal at 52 FR 38658 confirmed.....	132
187 Removal at 52 FR 38658 confirmed.....	132
188.01-7 Added.....	50382
189.55-15 (a)(3) revised.....	19572
197.203 Added.....	50382

1990

(Regulations published from January 1, 1990 through October 1, 1990)

46 CFR	55 FR Page
Chapter I	
167.01-5 (c) revised.....	30663
167.35-2 (a) revised.....	30663
167.60-1 (d) revised.....	30663
175.05-1 (a) Table 175.05-1 footnote 6 and (c) revised.....	30663
175.05-3 (b)(1) revised.....	30663
176.35-1—176.35-30 (Subpart 176.35) Heading revised.....	30664
176.35-1 Revised.....	30664
176.35-5 Revised.....	30664

46 CFR—Continued	55 FR Page
Chapter I—Continued	
176.35-10 (a) revised.....	30664
184.01-3 Revised.....	3959,3960
184.01-4 Regulation at 54 FR 6403 confirmed.....	3959
184.05-1 (d) revised.....	3960
188.05-1 (a) Table 188.05-1(a) footnote 6 revised.....	30664
188.05-10 (a)(2)(i) and (ii) revised.....	30664
188.10-35 Revised.....	30664
189.55-5 (j) added.....	32249
(j) technical correction.....	38441
189.60-1—189.60-45 (Subpart 189.60) Heading revised.....	30665
189.60-5 (a) revised.....	30665
189.60-45 (a) revised.....	30665
190 Authority citation revised.....	32249
190.02-1 (Subpart 190.02) Added.....	32249
Technical correction.....	38441
192.10-1 (c) revised.....	30665
192.20-15 (nn) revised.....	30665